THEEWATERSKLOOF MUNICIPALITY

INTEGRATED WASTE MANAGEMENT PLAN
(3rd Generation)

(*Draft Report*)

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ABBREVIATIONS

DEA	Department of Environment Affairs
D:EA&DP	Department of Environmental Affairs and Development Planning
DWA	Department of Water Affairs
EH	Environmental Health
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
Haz	Hazardous
HCGW	Health Care General Waste
HCRW	Health Care Risk Waste
HCW	Health Care Waste
HDPE	High Density Polyethylene
kg	kilogram
kℓ	kilolitre
ℓ	litre
m^3pa	cubic meter per annum
t/a	ton per annum
VWMF	Vissershok Waste Management Facility
WWT	Waste Water Treatment
CNC	Cape Nature Conservation
IWMP	Integrated Waste Management Plan
JPCE	Jan Palm Consulting Engineers
IPWIS	Integrated Pollutant and Waste Information System
TM	Theewaterskloof Municipality
EAP	Environmental Assessment Practitioner

THEEWATERSKLOOF MUNICIPALITY

INTEGRATED WASTE MANAGEMENT PLAN

1. PREFACE

1.1 INTRODUCTION

The third generation of this Integrated Waste Management Plan (IWMP) has been formulated by Jan Palm Consulting Engineers (JPCE) on behalf of Theewaterskloof Municipality to address the challenge of waste management in Theewaterskloof, home to some 113 900 people (2014 population estimate. Refer Section 1.4). The second generation IWMP was developed in 2010 and was subsequently commented on and evaluated by the Department: Environmental Affairs and Development Planning (D:EA&DP). JPCE was appointed by the Theewaterskloof Municipality to develop the third generation IWMP for 2014.

The March 2013 D:EA&DP assessment report of the 2nd generation, 2010 IWMP is summarised as follows, which identified topics which should be addressed with the new IWMP revision:

- Introduction and general description: Requires reference to recommendations made in the assessment report and reference should be made to the National Waste Management Strategy of November 2011.
- Strategic linkages: The IWMP must be aligned to the Integrated Development Plan (IDP), Provincial Spatial Development Framework (SDF) as well as the municipal SDF, the Western Cape IWMP and National Waste Management Strategy 2011. Indicate what will be incorporated in the IDP.
- Public participation: Include proof of public participation.
- The latest solid waste legislation must be included in the IWMP.
- The latest demographic information must be used from Census 2011.
- Budget and capital and operational expenditure should be shown.
- The IWMP must indicate service areas the level of free basic services.
- The IWMP must indicate an updated status of waste management licenses.
- The previous IWMP does not include a waste stream characterisation.
- Indicate how the Municipality intends to encourage and support waste minimisation.
- The organisational structure must be included in the IWMP.
- The IWMP must indicate how the Municipality intends to encourage and support waste awareness and education and indicate the cost implications.
- The Municipality must implement the waste calculator of D:EA&DP and capture their information on the IPWIS.
- The Municipality should explain how they will address or improve waste management of their facility, litter and salvagers.
- The goals and objectives must be consistent with the mandates of the NWMS and Western Cape IWMP and must be clear.
- An implementation strategy should be developed with identified activities and timeframes. It must be linked to the IDP.
- There was no monitoring or review programme in the IWMP.

The terms of reference for the development of the Theewaterskloof third generation IWMP include a status quo analysis, strategic objectives and an implementation plan.

The IWMP is a statutory requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) that has been promulgated and came into effect on 1 July 2009 and that has as its goal the transformation of the current methodology of waste management, i.e. collection and disposal, to a sustainable practice focussing on waste avoidance and environmental sustainability. Implementation of this IWMP will be through municipal by-laws and in accordance with an implementation schedule.

The development of the IWMP is necessary as it is an integral tool to identify current needs and act as a guide towards sustainable waste management. With regular updates of this document the changing needs as well as progress in the waste management field can be tracked and strategies adapted accordingly. It also provides a framework for budgeting purposes. The IWMP must be incorporated as part of each Municipality's Integrated Development Plan (IDP), but is submitted as a separate document. The IWMP also shows alignment of its goals with the Western Cape IWMP and the National Waste Management Strategy (NWMS 2011).

The primary objective of integrated waste management (IWM) planning is to integrate and optimise waste management, in order to maximise efficiency and minimise the associated environmental impacts and financial costs, and to improve the quality of life of all residents within the Theewaterskloof Municipality.

The Plan takes particular note of importance of local authority waste management planning. This document underlines the following principles of the National Waste Management Strategy:

- The prevention of waste generation;
- The recovery of waste of which the generation cannot be prevented, and
- The safe disposal of waste that cannot be recovered

The Plan will address all areas of waste management – from waste prevention and minimisation (Waste avoidance), to its collection, storage, transport, treatment, recovery and final disposal. It will not only address the practicalities of waste management, but also the issues of public education and changing concepts, as these are vital to a successful management system.

1.2 IWMP DEVELOPMENT

The planning phase of the third generation IWMP included the following:

The scope of the plan would follow the D:EA&DP's checklist for Integrated Waste Management Planning. The checklist is attached as **Annexure 1**.

The public participation phase of the development of the IWMP will be in the form of advertisements in the local newspapers. The draft document will be made available at the public libraries and at www.jpce.co.za for the public to view and comment on. The draft IWMP will then serve as base on which to provide comment and input. All comments will be included in the final version of the IWMP.

The participants in the Theewaterskloof IWMP third generation process are Mr L. Parnell (Senior Civil Engineering Technician, Theewaterskloof Municipality), Mr D. Damons (Deputy Director Technical Services, Theewaterskloof Municipality) and Jan Palm Consulting Engineers (Consulting Civil Engineers specializing in Solid Waste Management) with communication and input from the various Municipal officials who provided information contributing to the IWMP development. During the public comment phase, other participants have the opportunity to contribute to the IWMP development before the release of the final document, e.g. NGO's. The IWMP will have to be approved by Council, as it forms part of the IDP.

A project meeting was held at the Theewaterskloof Municipal Offices in Caledon on the 11th of August 2014 which was attended by the project team. The contents of the document, required information and planned way forward was discussed. The consultant provided a questionnaire to the Theewaterskloof Senior Civil Engineering Technician to obtain the status quo information for the IWMP.

The waste streams and quantities discussed in this IWMP include household waste, garden (green) waste, commercial and industrial waste and builder's rubble. Medical waste and hazardous wastes are also discussed, but quantities are unknown.

1.3 THEEWATERSKLOOF MUNICIPALITY GENERAL DESCRIPTION

Theewaterskloof Municipality is the eastern neighbour of the City of Cape Town, although separated by the well-known Sir Lowry's Pass, Drakenstein and Franschhoek mountains. It is an area noted for its veld flowers, fruit farming and sheep farming.

The Theewaterskloof area host many industries, but the agriculture and agriculture related industries are the main stream. Tourism is also a fast growing industry in Theewaterskloof.

The Theewaterskloof Municipality was established in December 2000 through the amalgamation of the former municipalities and towns of Caledon, Grabouw, Villiersdorp, Elgin, Botrivier, Tesselaarsdal, Myddleton, Greyton, Genadendal and Riviersonderend.

Refer to Figure 1-1 for a Plan of the Study Area.

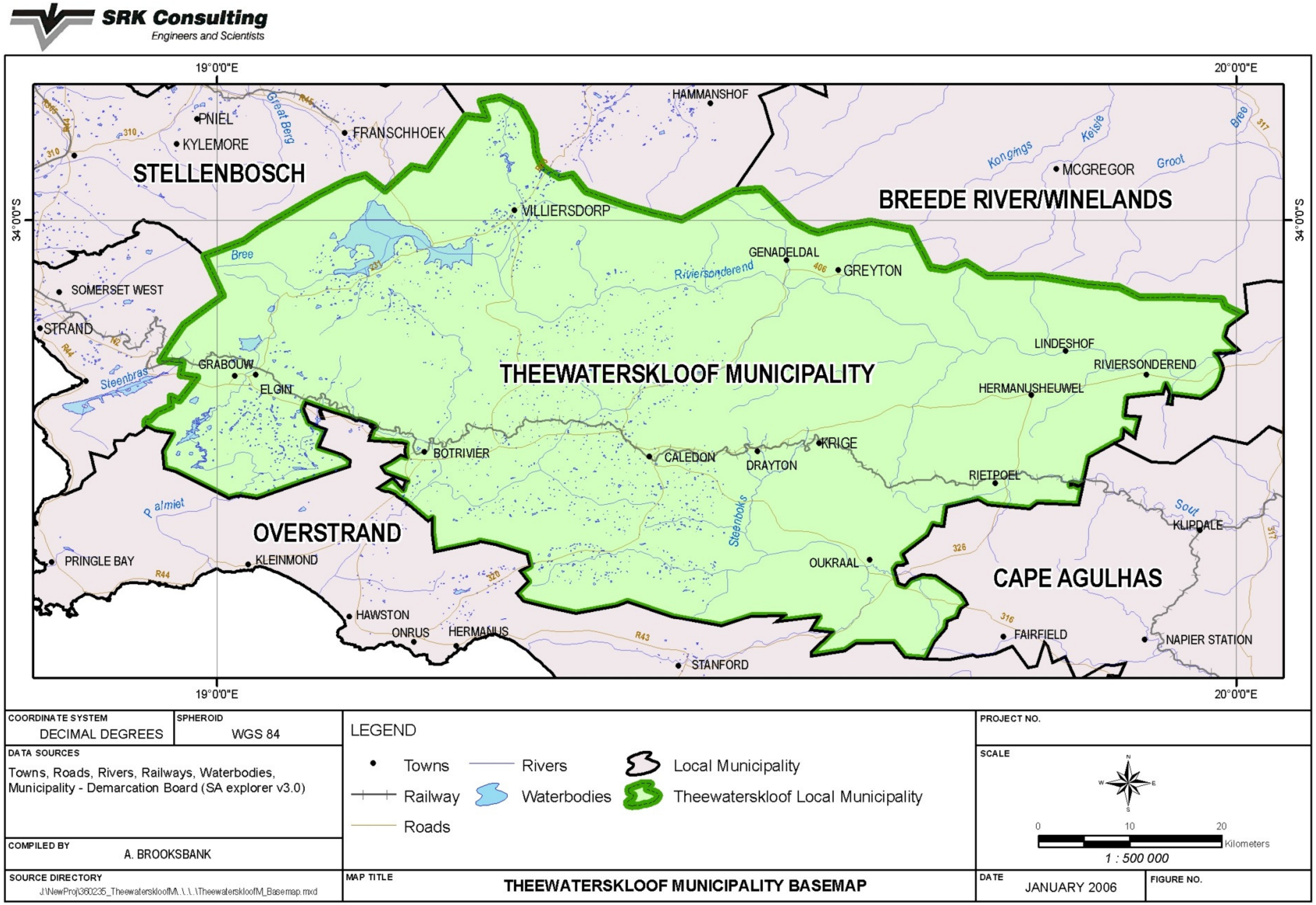


Figure 1-1: Study Area - Theewaterskloof Municipal Area

1.3.1 Topography and Climate

The municipal area consists of mountainous topography in the west and the north and the rolling hills of the Overberg in the remainder of the municipal area.

The area falls within the Western Cape Mediterranean climate zone and is known for its hot and dry summer days. Average annual rainfall, mainly during the winter months, is approximately 690 mm.

Winds are seasonal and generally North-west or South-east

1.3.2 Geology and Hydrogeology

1.3.2.1 Geology

(Refer Figure 1-2)

The Theewaterskloof Municipal area is underlain by rocks of three main geological formations, with small “windows” of three other formations, plus alluvial deposits. The three main formations are, in chronological order, the Table Mountain, Bokkeveld and Witteberg Groups. The three minor formations are, also in chronological order, the Malmesbury Group, Cape Granite Suite and Dwyka Formation. Alluvial deposits are associated with the Riviersonderend River.

The Malmesbury Group rocks only outcrop in one small area roughly midway between Greyton and Riviersonderend in the Riviersonderend mountains. These rocks are very old, >600 million years, and comprise metasediments such as phyllitic shale. They occupy 1.5% of the area. They have been intruded by granite of the Greyton Pluton of the Cape Granite Suite, which comprises a medium to coarse grained, porphyritic, biotite granite.

The Table Mountain Group (TMG) rocks predominantly comprise resistant quartzitic sandstones and form the range of bounding mountains to the north, west and south of the municipal area. There is also a triangular shaped inlier of TMG rocks just to the north of Caledon. These mountains form a southern branch of the Cape Fold Belt and also underlie the inland areas, but at much greater depths. These rocks occupy about 33.5% of the outcrop area.

The Bokkeveld Group rocks occupy the largest area, some 58% of the central municipal area. They comprise an alternating sequence of shales and sandstones. However, in this area the sandstones are relatively poorly developed compared to further west. This lithology gives rise to the characteristic rolling hilly topography of the Overberg wheatland areas.

The Witteberg Group is similar to the Bokkeveld in that it comprises a sequence of alternating shales and sandstones. However, it has a higher percentage of sandstone compared to the latter. It is limited to two tongue shaped areas extending from the TMG of the Riviersonderend mountains, one at Greyton-Genadendal and the other a few kilometers to the west. These rocks occupy 5% of the area.

The youngest of the rock formations present is the Dwyka Formation. However, these only occupy a very small area either side of the Riviersonderend at Greyton. They comprise tillite (a rock comprising a fine grained matrix with included pebbles and boulders of glacial origin), shale and sandstone. Alluvial deposits occur along the course of the Riviersonderend comprising sand and boulders of mainly TMG sandstone origin. They occupy about 2% of the area.

There are a number of large regional faults in the area. The main one extends along the southern margin of the Riviersonderend mountains all the way from the Houwhoek area to the eastern boundary of the municipal area. A major east-west trending fault forms the southern boundary of the TMG inlier at Caledon. A hot spring is associated with this fault with a flow of 10 l/s and a temperature of 38°C. Other north-south and northeast-southwest trending faults occur in the east central area and southern boundary area.

1.3.2.2 Groundwater

(Refer to Figure 1-3 and Figure 1-4)

In broad terms, any aquifers developed in rocks of the Malmesbury, Table Mountain, Bokkeveld and Witteberg Groups and Dwyka Formation will be of the fractured or secondary type, which are shown as shades of green on Figure 1-3. Aquifers developed in the unconsolidated alluvial sediments will be of the intergranular or primary type. They are not indicated on Figure 1-3 because of their subordinate importance compared to the other formations. Aquifers developed in the Cape Granite Suite may have groundwater occurring in fractures and also the upper weathered zone, i.e. they are composite aquifers. They are also not indicated on Figure 1-3 because of their small outcrop area.

In the fractured rock aquifers, the TMG Aquifers have the highest potential and are recognized as one of the best aquifers in South Africa. They are classed as B3 in the southern boundary area, implying a median borehole yield of 0.5 to 2 l/s. In the northern area, i.e. the Riviersonderend mountains, they are classed as B4, implying a median borehole yield of 2 to 5 l/s, while in the Grabouw area, they are classed as B5, the highest classification, implying a median borehole yield of >5 l/s. However, they generally have limited accessibility due to the rugged mountainous topography developed by the resistant quartzitic sandstones.

Strong yielding boreholes have been established at Greyton and Bereaville for municipal use. Caledon derives groundwater from the hot spring and from boreholes, as does Botrivier, all from the TMG.

Over most of the central area, occupied by the Bokkeveld Aquifer, groundwater is used on a small scale for stock watering and domestic use via windpumps. This aquifer is classed as B3 in the area surrounding the Caledon TMG inlier and to the south of this. The classification gets lower in an easterly direction, with most of the latter area being classed as B1. Some strong yielding boreholes have been reported from the Bokkeveld in the Caledon area. However, the Bokkeveld rocks generally form a poor aquifer in the area because of their predominantly shaley nature, low recharge and poor water quality. The Witteberg Aquifer is classed as B3.

The best quality groundwater (refer to Figure 1-4) is found in the TMG and immediately adjacent aquifers. The TMG groundwater generally has an electrical conductivity (EC) of <20 mS/m. In the central and eastern areas groundwater quality deteriorates, particularly towards Krige and Rietpoel, where the EC exceeds 1000 mS/m.

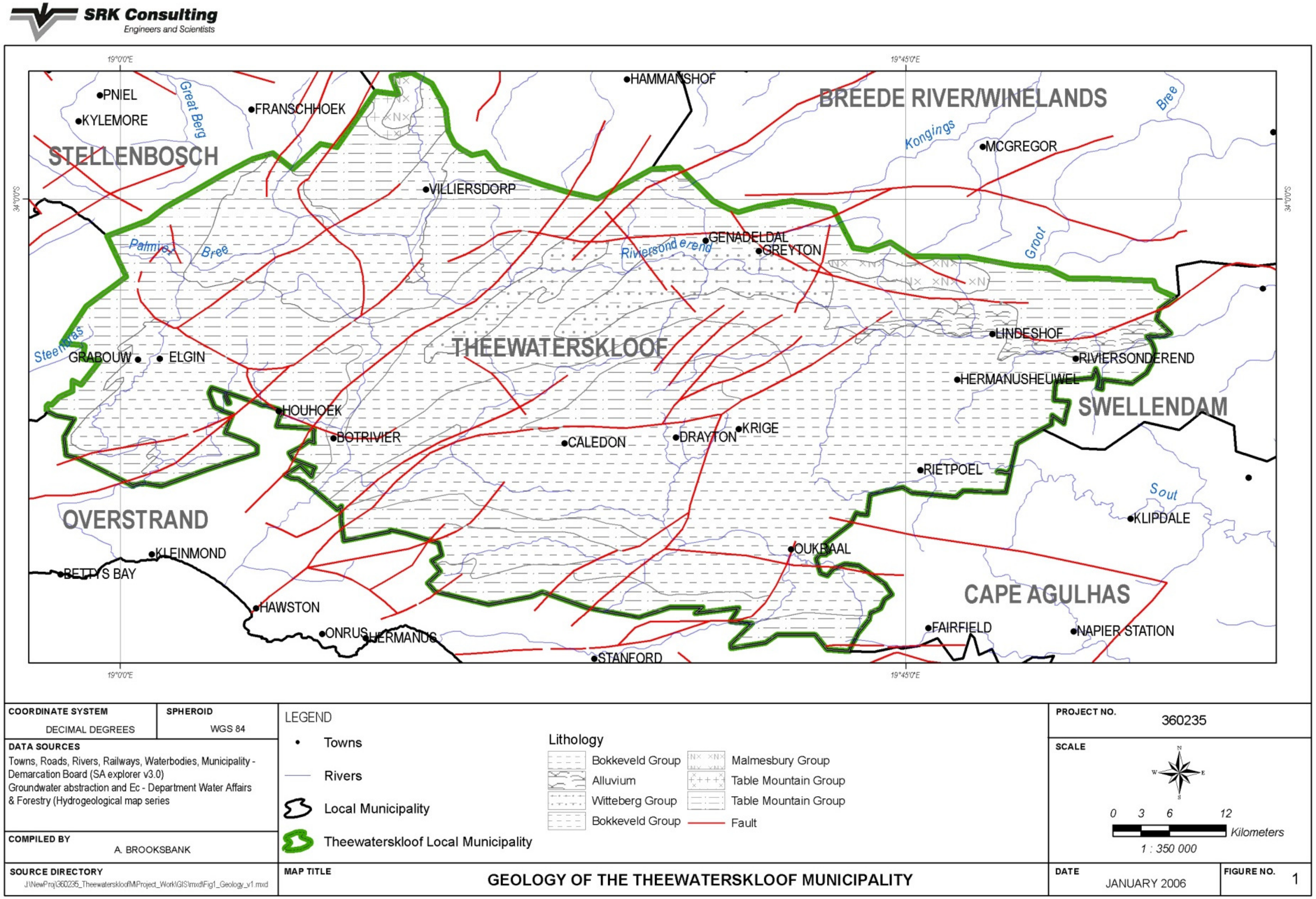


Figure 1-2: Geology of Theewaterskloof Municipal Area

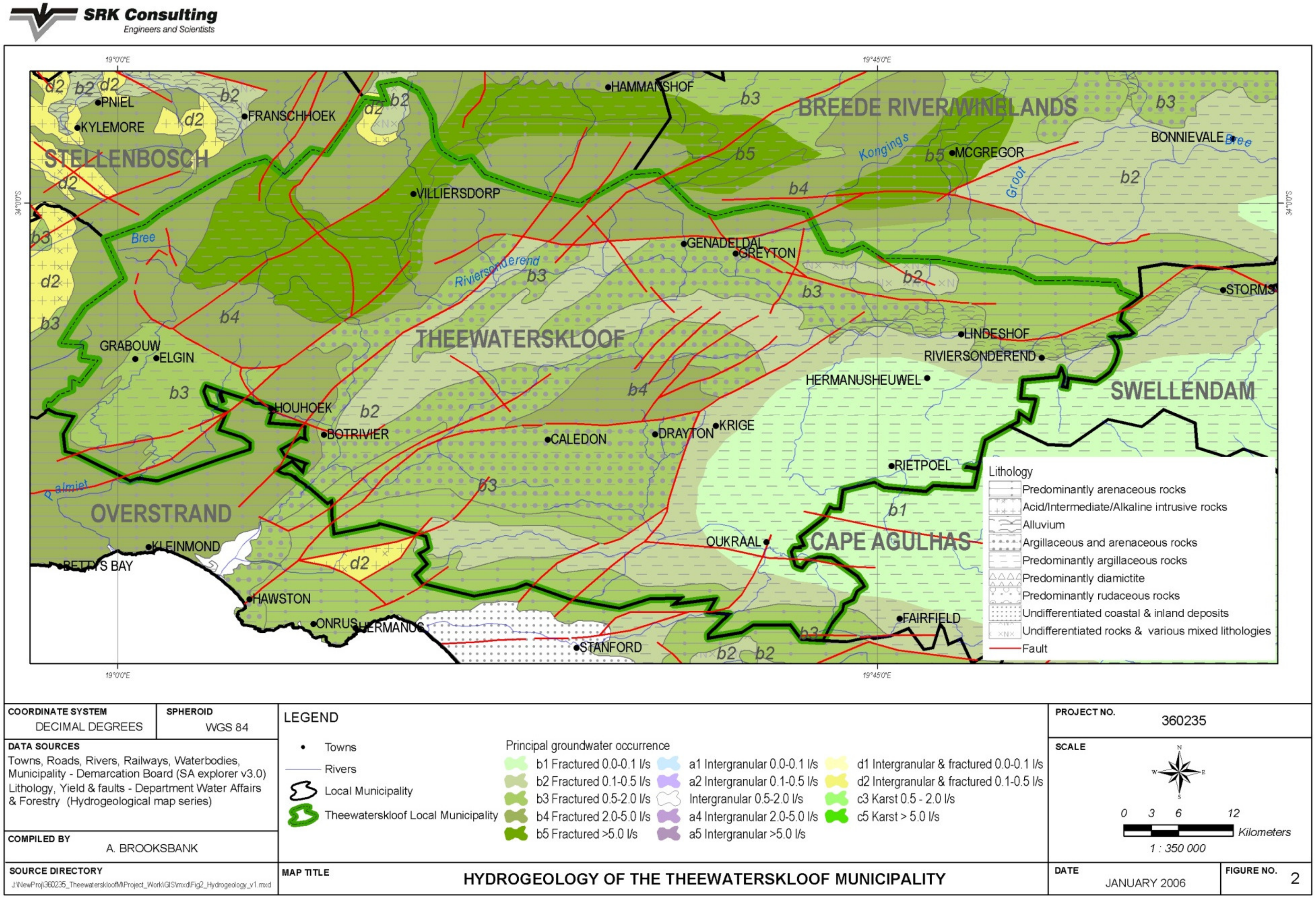


Figure 1-3: Hydrogeology of Theewaterskloof Municipal Area

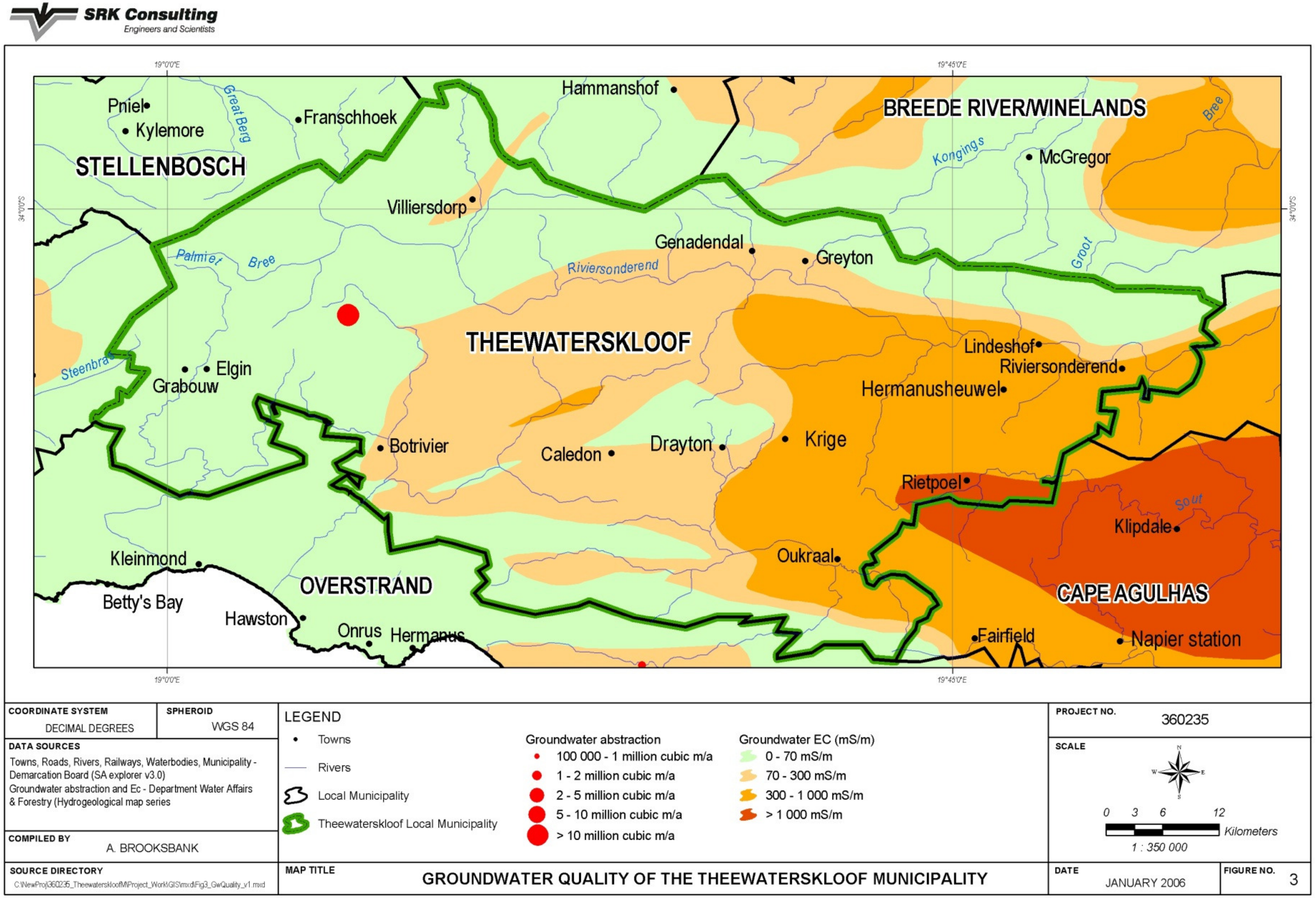


Figure 1-4: Groundwater Quality of the Theewaterskloof Municipal Area

1.4 DEMOGRAPHICS

The statistics relating to population were taken from Statistics SA. The latest 2011 Census population figures were used. The 2011 census shows the total Theewaterskloof Municipality population as 108,790 people with an annual growth rate of 1.54% since the 2001 Census. This growth rate was applied to the population figures per sub-area to estimate the 2014 sub-area numbers, 2014 total population and future population projections. These are shown in Table 1-1 below.

The population profile according to household income in Table 1-2 below reflects census 2011 distributions. The 2001 ratio of Low & Very low income: Mid Income: High & Very high income was 75.2%: 13.3%: 11.5%. (Total average) The average percentage distribution of low, mid and high income groups from the 2011 Census figures were 57.67%: 19.1%: 23.23% (Total average), showing an overall decline (in percentage) in the Low & Very Low income groups.

Of those aged 20 years and older, 20.2% have completed matric, 7.3% have some form of higher education, while 5% of those aged 20 years and older have no form of schooling.

The 2014 number of households in Table 1-2 were estimated from the 2011 figures, with the assumption that the average household size per sub-area would remain constant.

Table 1-1: Population Figures

Sub-area	2011	2014	2020
Goniwe Park	4 437	4 645	5 091
Villiersdorp SP	2 265	2 371	2 599
Nuwedorp B	3 303	3 458	3 790
Theewaterskloof NU	34 203	35 808	39 246
Genadendal SP1	4 146	4 341	4 757
Bereaville	702	735	806
Genadendal SP2	813	851	933
Dennehof SP	120	126	138
Bosmanskloof	909	952	1 043
Heuwelkroon	1 140	1 193	1 308
Greyton SP	732	766	840
Riviersonderend SP	5 247	5 493	6 021
Elgin SP	954	999	1 095
Swannie River	231	242	265
Nuwedorp A	864	905	991
Rooidakkies	3 291	3 445	3 776
Pineview North	4 050	4 240	4 647
Pineview	13 540	14 175	15 536
Grabouw SP	1 527	1 599	1 752
Dennekruin	1 446	1 514	1 659
Snake Park	5 370	5 622	6 162
Middleton SP	963	1 008	1 105
Caledon SP	3 878	4 060	4 450
Uitsig	3 492	3 656	4 007
Tjotjombeni	696	729	799
Bergsig	4 962	5 195	5 694
Botvilla	1 236	1 294	1 418
Botrivier Dorpsgebied	640	670	734
Botrivier SP	3 633	3 803	4 169
Total	**108 790**	**113 894**	**124 831**

The socio-economic profile of the population in 2011, according to annual household income, is displayed in Table 1-2 along with the 2014 estimates per sub-area. Note that rural households are included.

Table 1-2: Population Profile According to Household Income (2011 & estimated 2014)

Sub-area	No of Households 2011	Population (2011)	Persons per Household	Very Low and Low Income	Middle Income	High and Very High Income	No of Households 2014	Population (2014)
				R0 - R38400	R38401 - R76800	R76801 or more		
Goniwe Park	1 902	4 437	2.3	87.2%	10.7%	2.1%	1 992	4 645
Villiersdorp SP	762	2 265	3.0	32.3%	16.9%	50.8%	798	2 371
Nuwedorp B	783	3 303	4.2	56.3%	24.1%	19.5%	820	3 458
Theewaterskloof Rural	8 088	34 203	4.2	51.6%	23.0%	25.3%	8 468	35 808
Genadendal SP1	1 164	4 146	3.6	66.8%	19.1%	14.2%	1 219	4 341
Bereaville	195	702	3.6	70.8%	26.2%	3.1%	205	735
Genadendal SP2	228	813	3.6	68.4%	23.7%	7.9%	239	851
Dennehof SP	39	120	3.1	30.8%	0.0%	69.2%	41	126
Bosmanskloof	261	909	3.5	70.1%	18.4%	11.5%	274	952
Heuwelkroon	324	1 140	3.5	67.6%	23.1%	9.3%	340	1 193
Greyton SP	402	732	1.8	21.6%	8.2%	70.1%	421	766
Riviersonderend SP	1 485	5 247	3.5	65.5%	16.8%	17.8%	1 555	5 493
Elgin SP	144	954	6.6	54.2%	22.9%	22.9%	151	999
Swannie River	78	231	3.0	7.7%	3.8%	88.5%	82	242
Nuwedorp A	228	864	3.8	18.4%	10.5%	71.1%	239	905
Rooidakkies	669	3 291	4.9	84.8%	10.3%	4.9%	701	3 445
Pineview North	846	4 050	4.8	36.9%	17.0%	46.1%	886	4 240
Pineview	3 429	13 540	3.9	70.7%	18.2%	11.1%	3 590	14 175
Grabouw SP	477	1 527	3.2	23.3%	13.2%	63.5%	500	1 599
Dennekruin	300	1 446	4.8	63.0%	20.0%	17.0%	315	1 514
Snake Park	1 671	5 370	3.2	78.3%	15.4%	6.3%	1 750	5 622
Middleton SP	249	963	3.9	41.0%	21.7%	37.3%	261	1 008
Caledon SP	1 131	3 878	3.4	24.9%	12.7%	62.3%	1 185	4 060
Uitsig	885	3 492	3.9	52.5%	30.2%	17.3%	927	3 656
Tjotjombeni	282	696	2.5	68.1%	22.3%	9.6%	296	729
Bergsig	1 254	4 962	4.0	40.4%	23.9%	35.6%	1 313	5 195
Botvilla	294	1 236	4.2	63.3%	26.5%	10.2%	308	1 294
Botrivier Dorpsgebied	156	640	4.1	50.0%	15.4%	34.6%	164	670
Botrivier SP	1 140	3 633	3.2	64.2%	16.6%	19.2%	1 194	3 803
Total	**28 866**	**108 790**	**3.8**	**57.67%**	**19.10%**	**23.23%**	**30 234**	**113 894**

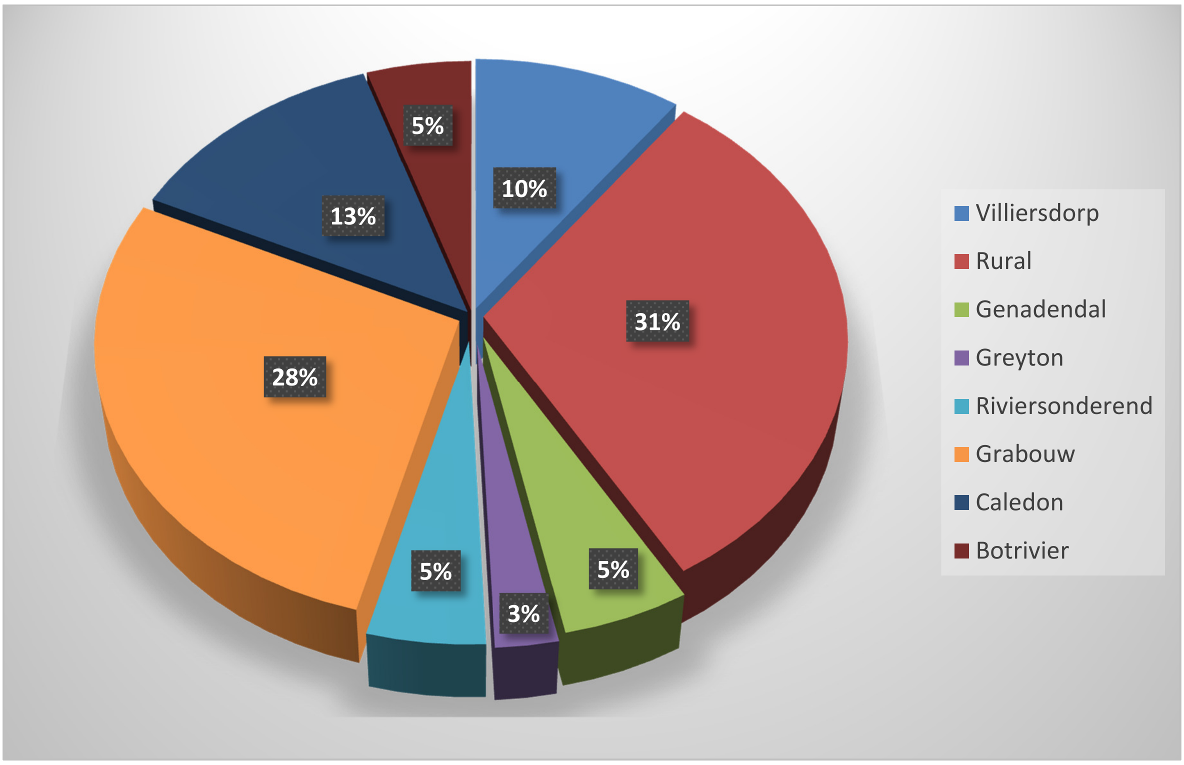


Figure 1-5: Graphical Display of Population Distribution

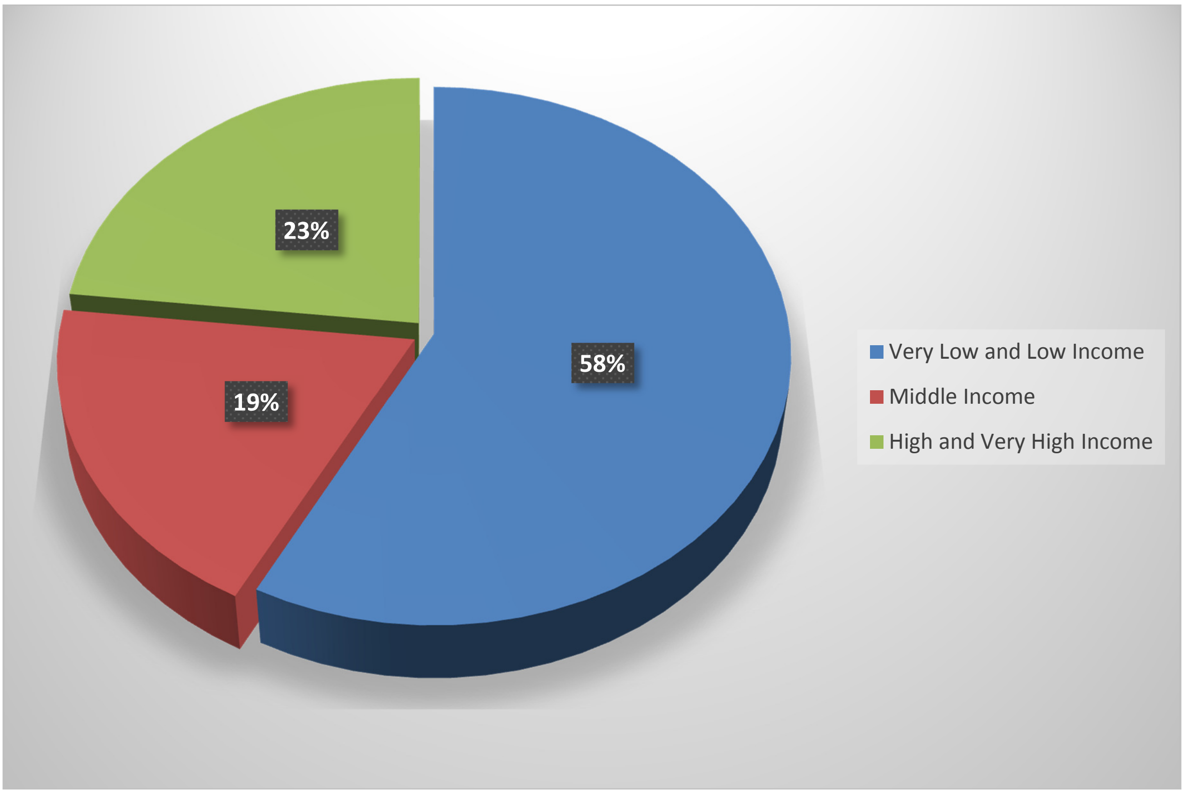


Figure 1-6: Graphical Display of Socio-Economic Distribution

1.4.1 Future development

The following figures illustrate the proposed future development of each town as taken from the Municipal SDF. The areas that will require future waste management services can be identified from these.

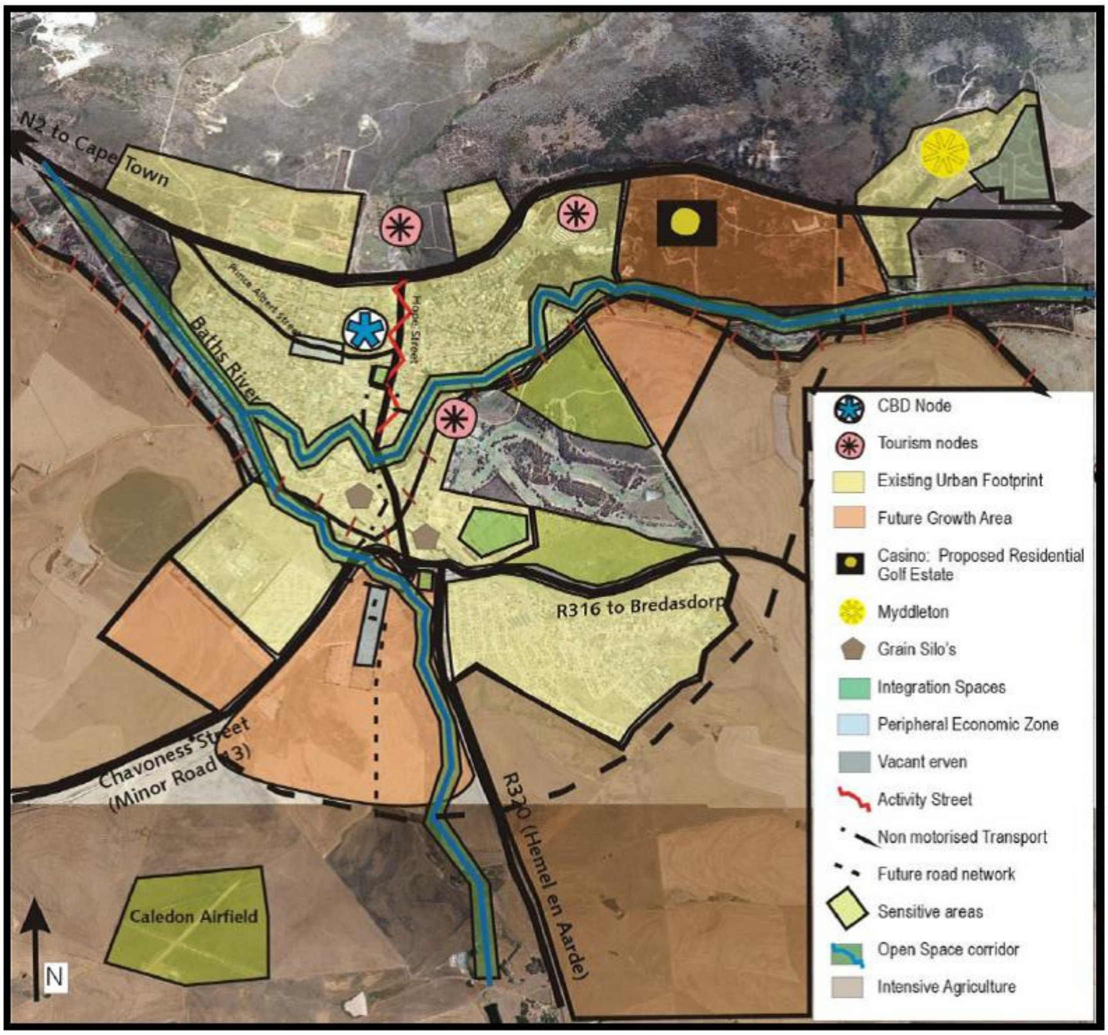


Figure 1-7: Caledon Spatial Integration Concept Plan – Municipal SDF

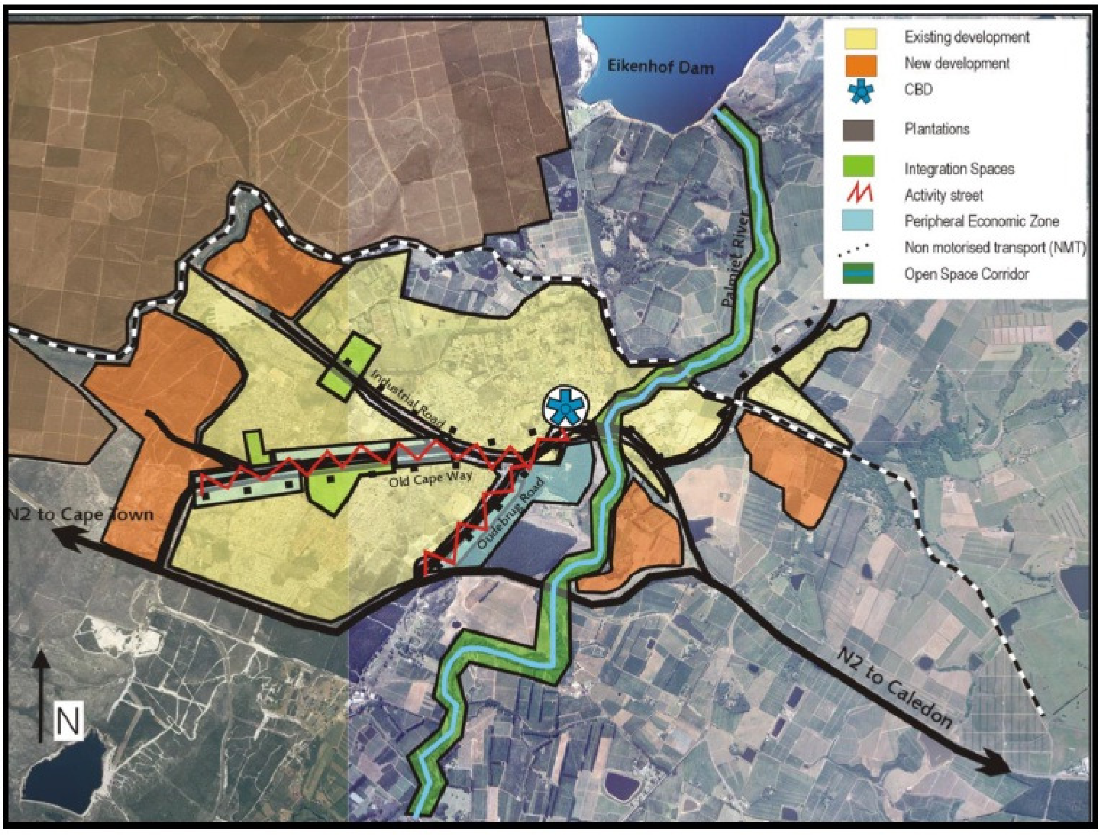


Figure 1-8: Grabouw Spatial Integration Concept Plan – Municipal SDF

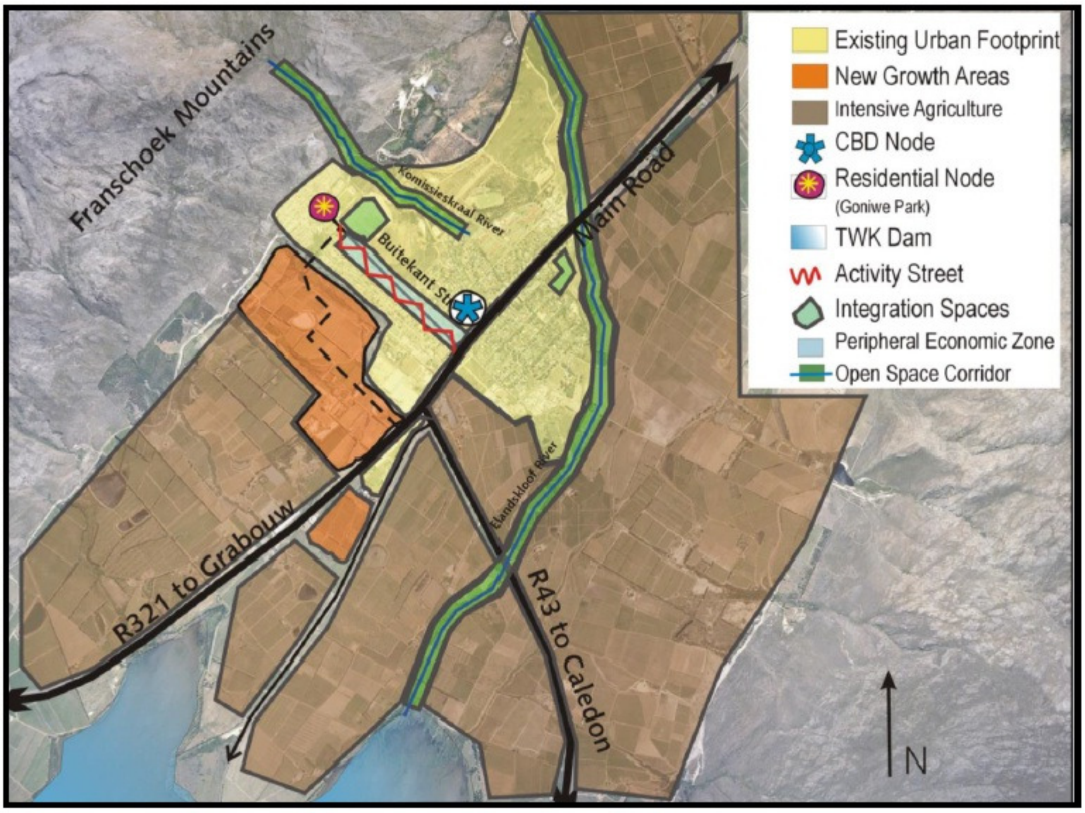


Figure 1-9: Villiersdorp Spatial Integration Concept Plan – Municipal SDF

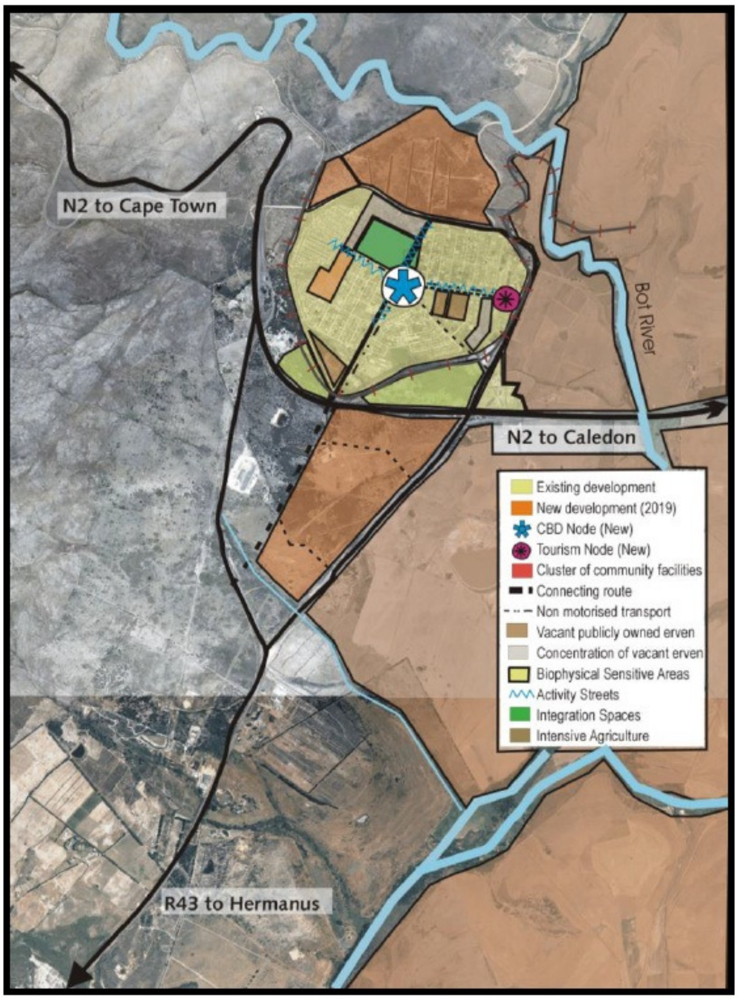


Figure 1-10: Botrivier Spatial Integration Concept Plan – Municipal SDF

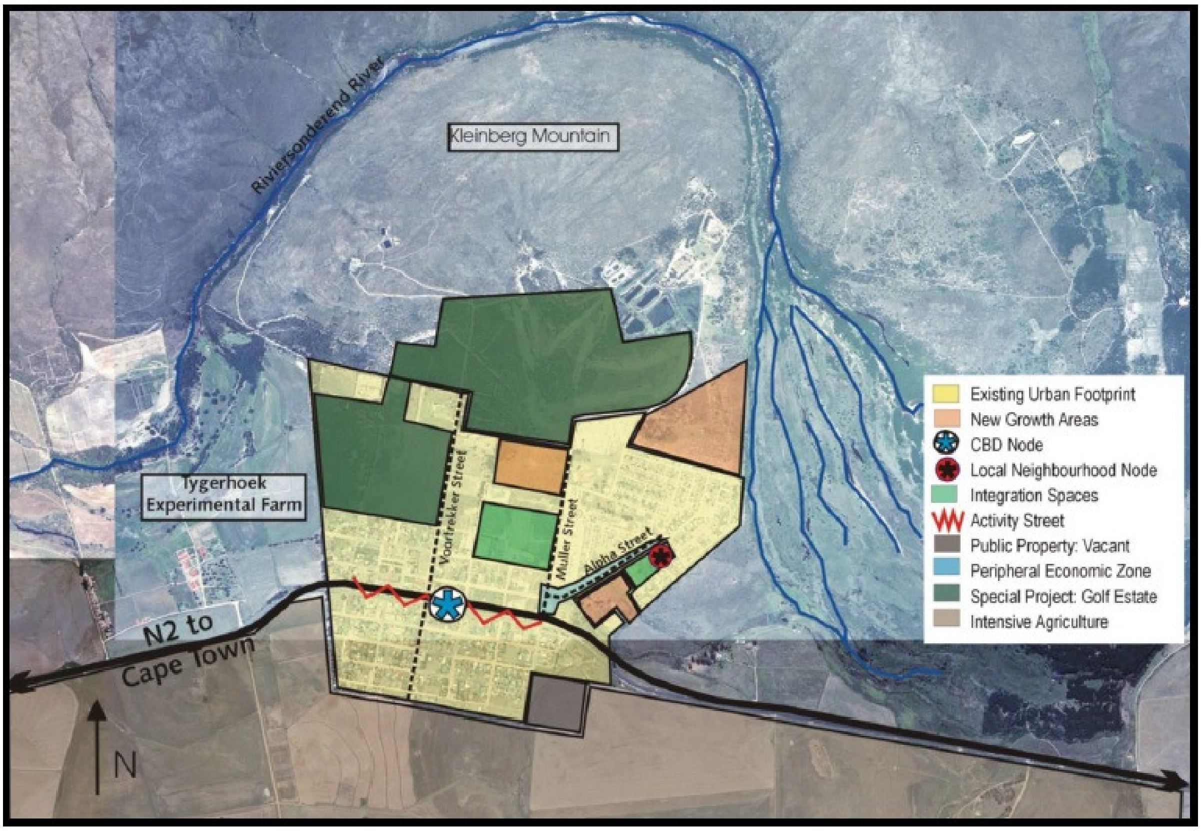


Figure 1-11: Riviersonderend Spatial Integration Concept Plan – Municipal SDF

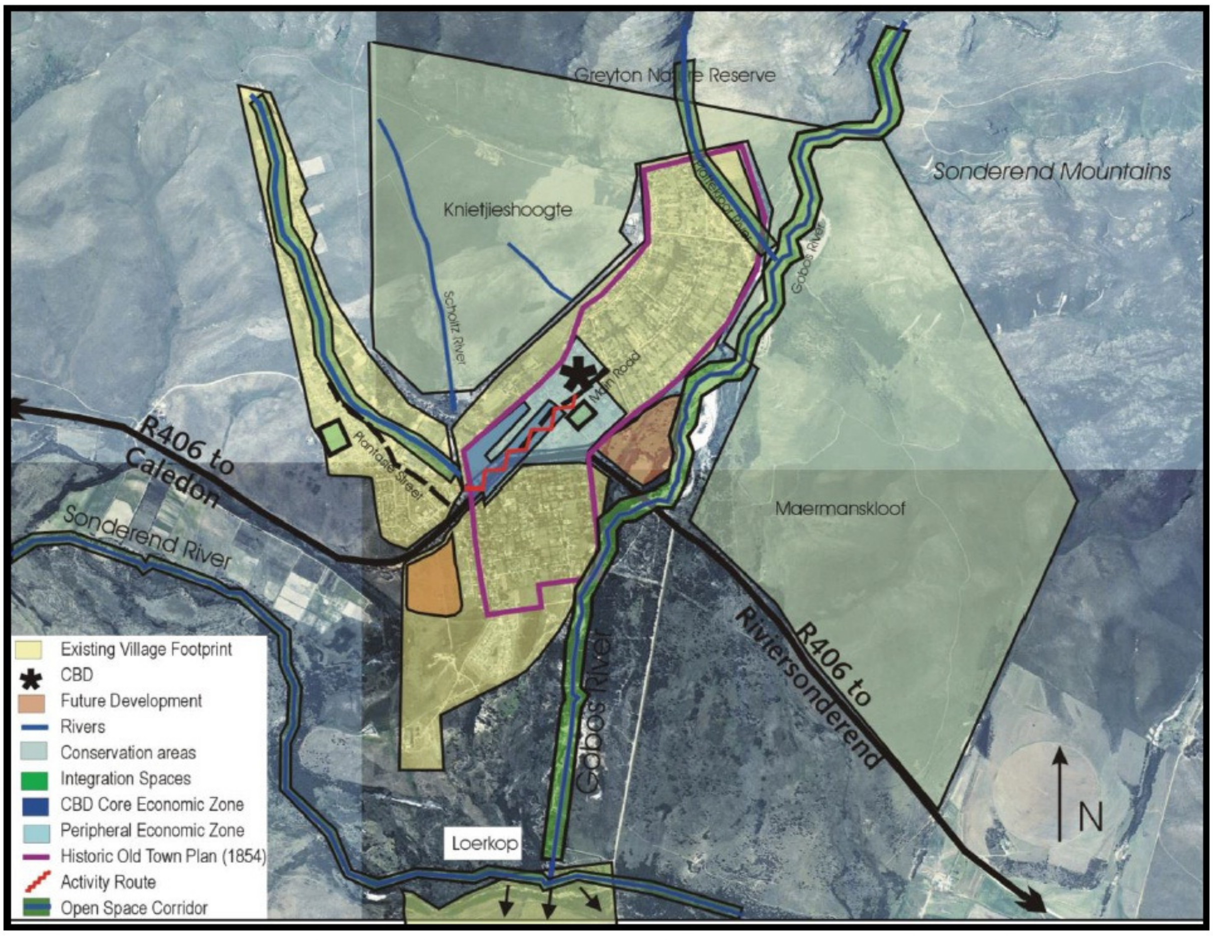


Figure 1-12: Greyton Spatial Integration Concept Plan – Municipal SDF

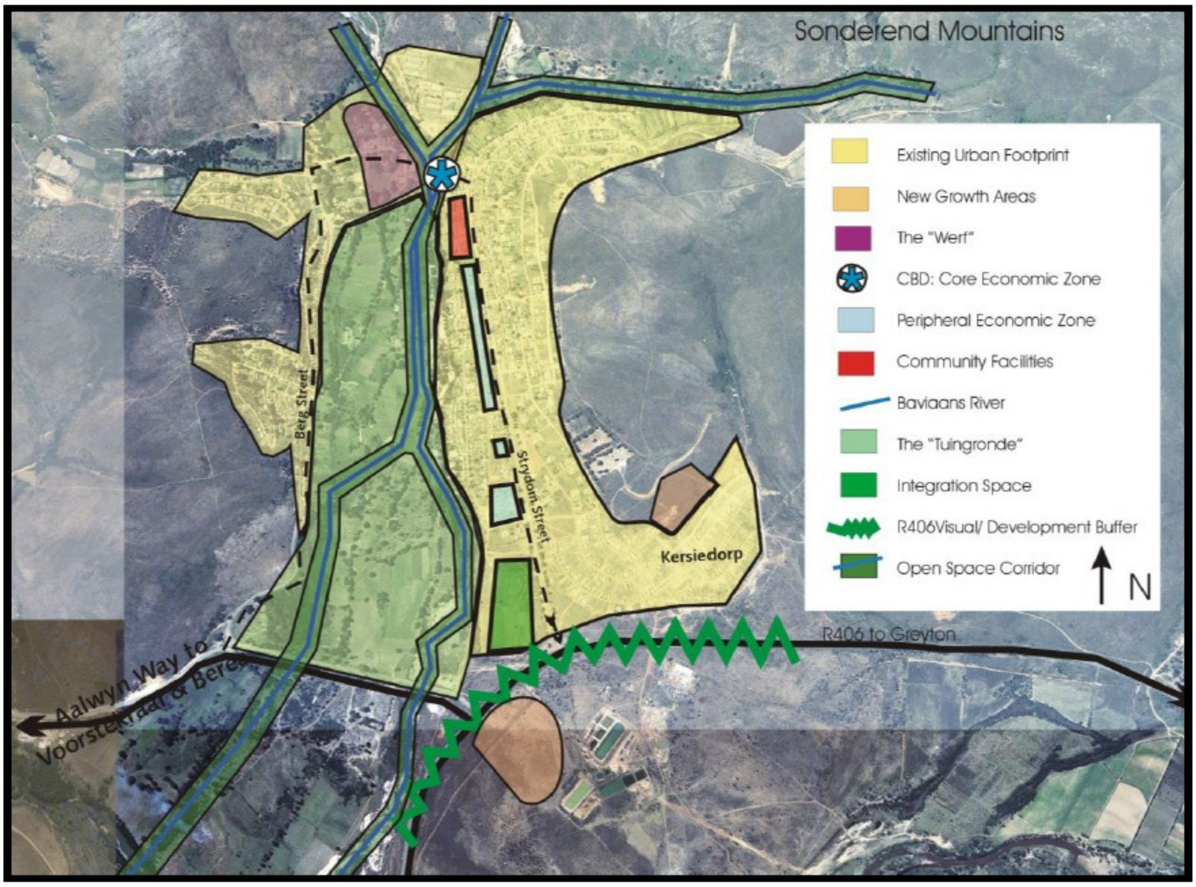


Figure 1-13: Genadendal Spatial Integration Concept Plan – Municipal SDF

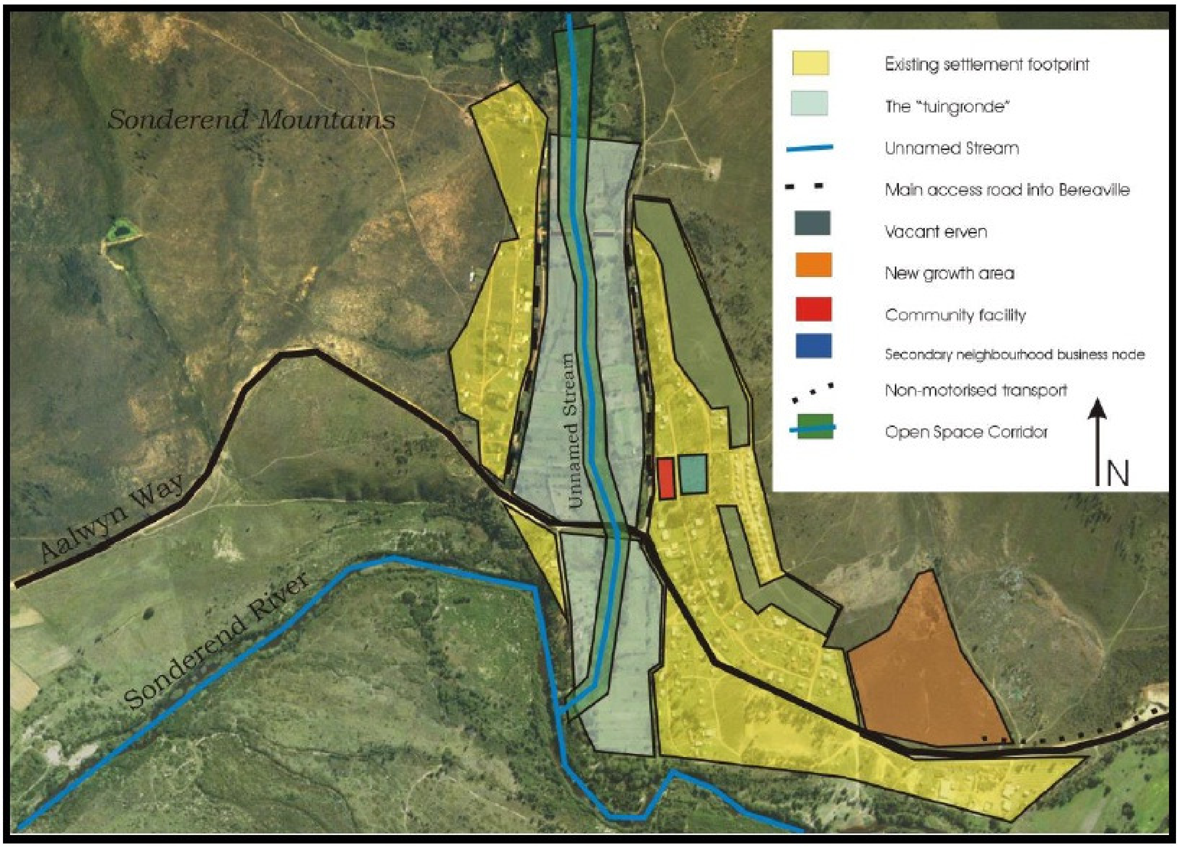


Figure 1-14: Voorstekraal Spatial Integration Concept Plan – Municipal SDF

1.5 TRANSPORT INFRASTRUCTURE

The road network of Theewaterskloof can best be described as rural. The major roads are the east-west N2 (Grabouw to Riviersonderend), the north-south R43 (Villiersdorp to N2 near Botrivier) and the R406 (linking Genadendal and Greyton with the N2) effectively link most of the towns within the Theewaterskloof Municipal boundaries.

1.6 STRATEGIC LINKAGES

Western Cape IWMP	NWMS (2011)	Theewaterskloof IWMP	Theewaterskloof SDF	Theewaterskloof IDP
Goal 1: Educate, strengthen capacity and raise awareness in integrated waste management	Goal 4: Ensure that people are aware of the impact of waste on their health, well-being and the environment	Goal 1: Public Awareness & Education	S10.10: Identify catalytic projects that will stimulate economic growth	SFA3: Institutional Development
Goal 2: Improve waste information management	Goal 5: Achieve integrated waste management planning	Goal 2: Waste Quantification & Information		
Goal 3: Promote sound, adequate and equitable waste management	Goal 2: Ensure the effective and efficient delivery of waste services	Goal 3: Effective Solid Waste Service Delivery	S10.7: Identify strategic interventions into nodes with potential to grow but currently experiencing economic stagnation or decline.	SFA4: Basic Service Delivery
Goal 4: Mainstream Integrated Waste Management Planning in municipalities and industry	Goal 5: Achieve integrated waste management planning	Goal 4: Promote and Ensure Waste Minimisation		SFA4: Basic Service Delivery
	Goal 1: Promote waste minimi-sation, re-use, recycling and recovery of waste	Goal 1: Public Awareness & Education		SFA5: Local Economic Development
Goal 5: Mainstream sustainable waste management practices	Goal 1: Promote waste minimisa-tion, re-use, recycling and recovery of waste	Goal 4: Promote and Ensure Waste Minimisation		SFA4: Basic Service Delivery
	Goal 3: Grow the contribution of the waste sector to the green economy	Goal 3: Effective Solid Waste Service Delivery		

Western Cape IWMP	NWMS (2011)	Theewaterskloof IWMP	Theewaterskloof SDF	Theewaterskloof IDP
Goal 6: Strengthen the waste regulatory system/framework	Goal 8: Establish effective compliance with and enforcement of the Waste Act	Goal 5: Improve Regulatory Compliance		SFA2: Good Governance
	Goal 2: Ensure the effective and efficient delivery of waste services			SFA3: Institutional Development
	Goal 7: Provide measures to remediate contaminated land			
Goal 7: Ensure the safe and integrated management of hazardous waste	Goal 7: Provide measures to remediate contaminated land	Goal 6: Ensure the safe and integrated management of hazardous waste		SFA3: Institutional Development
		Goal 5: Improve Regulatory Compliance		
		Goal 1: Public Awareness & Education		
Goal 8: Facilitate access to funds to implement Integrated Waste Management	Goal 6: Ensure sound budgeting and financial management for waste services	Goal 7: Ensure sound budgeting for integrated waste management	S10.10: Identify catalytic projects that will stimulate economic growth	SFA1: Financial Viability; SFA 5: Local Economic Development

2. BACKGROUND POLICY AND LEGISLATION

The fragmented and uncoordinated way pollution and waste has been dealt with, as well as insufficient resources to implement and monitor existing legislation, contributes largely to the unacceptably high levels of pollution and waste in South Africa. Through the promulgation and implementation of various pieces of policies, legislation, standards and guidelines as well as the implementation of co-operative governance as envisaged in the Constitution this situation will be improved. The current fragmentation, duplication and lack of co-ordination will be eliminated.

Pollution and waste management is not the exclusive preserve of government. The private sector and civil society have crucial roles to play. The fostering of partnerships between government and the private sector is a prerequisite for sustainable and effective pollution and waste management to take place. Similarly, the spirit of partnerships and co-operative governance between organs of state is equally important due to the crosscutting nature of pollution and waste management.

2.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

In 1996 the new Constitution created the right to the environment as a fundamental right. This fundamental right to the environment ensures everyone’s right to an environment that is not harmful to their health or well-being. South African law, the environment and all South Africans have a constitutional right to have the environment protected for present and future generations.

This means that there must be reasonable legal and other measures to prevent ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

All legislation has to fall within the stipulations of the Constitution. The following sections are of particular relevance where waste is concerned:

- **Section 24(a)**

Provides everyone the right to an environment that is not harmful to a person's health and well-being.

- **Section 24(b)**

Provides everyone the right to have the environment protected through reasonable legislative and other measures. The implementation of section 21, 22 and 26 of the Environment Conservation Act, 1989 is such a legislative measure to protect the environment.

- **Section 25**

Provides for property rights. The Constitution makes provision for both property rights and the right to a healthy environment. A situation may arise in extreme cases where there is a conflict due to rejecting an application for a listed activity from taking place. In such cases it will be up to the court to decide whether the interest of the community (right to a healthy environment) weights heavier than the right of the individual.

- **Section 32**

Provides the right to access to information. The lack of information is one of the major obstacles in environmental impact management. Provision has been made in the regulations in terms of section 26 of the Environment Conservation Act, 1989, that any report submitted becomes a public document.

- **Section 38**

Provides locus standii or the ‘right to get involved" to any member of the public. This means that any member of the public has the right to take appropriate action to prevent environmental damage. This may include taking action against the relevant authority for failing to perform its duties in preventing environmental damage or an individual or authority who is in the process of undertaking listed activities in terms of section 21 of the Environment Conservation Act, 1989, without the necessary authorisation to undertake such activities.

- **Section 41**

Provides principles for co-operative governance and intergovernmental relations. The Constitution allocates legislative authority as well as executive and administrative powers to all three levels of government. Schedules 4 and 5 determine the functional areas of government. The environment is a cross-sectoral matter and it is therefore important that co-operation between government on all levels is necessary. Furthermore, Chapter 7 of the Constitution of South Africa (Act 108 of 1996) describes the role and responsibilities of Local Government, which include the objectives in Section 152:

“The objects of local government are:

- to promote social and economic development.
- to promote a safe and healthy environment...”.

These principles are further developed in the National Environmental Management Act 1998 (Act 107 of 1998).

The Constitution (Act No. 108 of 1996) is relevant to pollution and waste management for two reasons. Firstly, the Bill of Rights (Chapter Two of the Constitution) contains a number of rights relevant to integrated pollution and waste management, to the extent that an Act or particular statutory provision that does not uphold these rights, is unconstitutional. Secondly, the Constitution provides the legal basis for allocating powers to different spheres of government, and is thus relevant to the institutional regulation of integrated pollution and waste management.

Sovereign

The Constitution states that South Africa is a sovereign, democratic State. In terms of environmental management, it is important to recognize that sovereignty includes the ability to limit sovereign powers by entering into international agreements where the need arises.

The Bill of Rights

The most pertinent fundamental right in the context of integrated pollution and waste Management is the Environmental Right (Section 24), which provides that:

"Everyone has the right

(a) to an environment that is not harmful to their health or well-being; and
(b) to have the environment protected, for the benefit of present and future generation through reasonable legislative and other measures that –

  (i) prevent pollution and ecological degradation;
  (ii) promote conservation; and
  (iii) secure ecologically sustainable development and the use of natural resources while promoting sustainable economic and social development. "

This section of the Bill of Rights specifically imposes a duty on the State to promulgate legislation and take other steps to ensure that the right is upheld and that, among other things, pollution and ecological degradation are prevented.

2.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT

The NEMA provides for co-operative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

As the principal framework act for environmental issues, it has direct relevance to the implementation of the National Waste Management Strategy, one of the key implications being the designation of the DEAT as lead agent for the environment. Chapter 7 of NEMA has important direct implications for the achievement of the NWMS initiative.

The environment as defined in NEMA is the natural environment along with its physical chemical, aesthetic and cultural properties that influence human health and well-being.

NEMA contains the following environmental principles:

- Environmental management must put people and their needs at the forefront, and must serve their interest fairly.
- Development must be socially, environmentally and economically sustainable. This means that the following things must be considered before there is development:

  a) Disturbance of ecosystems and loss of biodiversity
  b) Pollution and degradation of the environment
  c) Disturbance of landscapes and sites where the nation's cultural heritage is found
  d) Non-renewable resources must be used responsibly
  e) The precautionary principle must be applied
  f) Negative impacts must be anticipated and prevented and if they can't be prevented they must be minimized or remedied.

- Environmental management must be integrated. The best practical environmental option must be pursued.
- Environmental justice must be pursued so that there is not unfair discrimination in the way that negative environmental impacts are distributed
- There should be equitable access to environmental resources, benefits and services to meet basic human needs. Special measures may be taken to ensure access for persons disadvantaged by unfair discrimination.

- Responsibility for environmental health and safety of any policy, programme or project must continue throughout the life cycle of a project
- Public participation in environmental decision-making must be promoted. The participation of vulnerable and disadvantaged groups must be ensured
- Decisions must take into account the interests, needs and values of all interested and affected parties. This includes recognizing all forms of knowledge including traditional and ordinary knowledge
- Community well-being and empowerment must be promoted through environmental education
- The social, economic and environmental impacts of the activities must be assessed
- The rights of workers to refuse to do work that is harmful to human health or the environment and to be informed of dangers must be respected
- Decisions must be taken in an open and transparent manner and access to information provided in accordance with the law
- There must be inter government co-ordination and harmonization of policies and laws
- Actual or potential conflicts of interest between organs of state must be resolved through conflict resolution procedures
- Global and international responsibilities relating to the environment must be discharged in the national interest
- The environment is held in a public trust for the people and the use of environmental resources must serve the public interest, and be protected as the people’s common heritage
- The polluter must pay for the costs of remedying pollution, environmental degradation and adverse health impacts
- The vital role of youth and women in environmental management must be recognized and their full participation promoted
- Sensitive or stressed ecosystems must receive special attention in planning which might affect them especially when they are subject to significant resource usage and development pressure.

NEMA also stipulates in Section 24 that there must be an environmental impact assessment before any activity or development that needs permission by law and which may significantly affect the environment.

Section 28 places a specific duty of care on every person to prevent, or mitigate and remediate, environmental damage and pollution. Any person, who was responsible for, or directly or indirectly contributed to the pollution, can be held liable. This includes the owner of the land at the time the pollution occurred or their successor in title, a person in control of the land at that time, or any person who negligently failed to prevent the situation.

The public can use NEMA to exercise their rights when they believe that the right procedures were not followed. Therefore it is extremely important to make sure that when there is a proposed development where the municipality is involved e.g. change of land-use – to make sure that the consultant and/or developers follow the right procedures.

The NEMA Environmental Impact Assessment Regulations

Sections 24 and 44 of NEMA make provision for the promulgation of regulations that identify activities that may not commence without environmental authorisation or existing activities in respect of which an application for environmental authorisation is required. In this context, EIA Regulations contained in three General Notices in terms of NEMA (GN R385, 386 and 387) (came into force on 3 July 2006.)

The 2006 Regulations were repealed by the June 2010 EIA Regulations (GN R543). The purpose of the Regulations is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it can con be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and for matters pertaining thereto.

2.3 NATIONAL ENVIRONMENTAL MANAGEMENT ACT: FEES FOR CONSIDERATION AND PROCESSING OF APPLICATIONS FOR ENVIRONMENTAL AUTHORISATIONS AND AMENDMENTS THERETO (GOVERNMENT NOTICE 28 FEBRUARY 2014)

These regulations apply to the above applications excluding community based projects funded by government grants or applications made by organs of state. The commencement date is 1 April 2014. Payment details are discussed regarding the different applicable fees which are listed as follows:

Application	Fee
Application for an environmental authorisation for which basic assessment is required in terms of the Environmental Impact Assessment Regulations	R2 000.00
Application for an environmental authorisation, for which a S&EIR is required in terms of the Environmental Impact Assessment Regulations	R10 000.00
Application dealt with in terms of section 24L of the Act	(a) 100% of the most expensive application, namely, R10 000 (Ten Thousand Rand) if S&EIR is triggered and R2000 (Two Thousand Rand) if the basic assessment is triggered;
	(b) 50% of the other application, namely, R5000 (Five Thousand Rand) if the S&EIR is triggered or R1000 (One Thousand Rand) if the basic assessment is triggered)
Amendment of an environmental authorisation on application by the holder of an environmental authorisation.	R2 000.00

2.3.1 Environment Conservation Act, 1989 (Act No. 73 of 1989)

On 1 July 2009 the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("the Waste Act") came into effect. The Waste Act repealed Section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) ("ECA") and introduces new provisions regarding the licensing of waste management activities.

The Environment Conservation Act, 1989 Waste Tyre Regulations (2009) which were published on 13 February 2009 came into effect on 30 June 2009, and makes provision for effective and integrated management of waste tyres in the country. It provides regulations for tyre producers, tyre dealers and waste tyre stockpile owners.

The regulations furthermore require the compilation of industry waste tyre management plans and waste tyre stockpile abatement plans and details the requirements for waste tyre storage areas.

2.4 THE WESTERN CAPE HEALTH CARE WASTE MANAGEMENT AMENDMENT ACT, 2007 (NO 6 OF 2010)

Act 7 of 2007 was amended in 2010 so as to align the terminology with that used in the National Environmental Management: Waste Act, 2008; to define or redefine certain expressions; to delete certain unnecessary definitions; to provide for the issuing of compliance notices; to amend the provisions relating to offences and penalties; to make further provision regarding regulations; to effect certain textual changes; and to provide for matters incidental thereto. The Health Care Management Bill provides for the effective handling, storage, collection, transportation, treatment and disposal of health care waste by all persons in the Province of the Western Cape; and provides for matters incidental thereto.

The object of this Act is to promote integrated health care waste management and thereby—

(a) reduce the risks of health care waste to human health;
(b) prevent the degradation of the environment;
(c) prevent the illegal dumping of health care waste;
(d) promote sustainable development, and
(e) ensure responsible management of health care waste within the Province.

Under this Act a Municipality must:

(a) enforce the relevant provisions of this Act within its area of jurisdiction;
(b) perform audits of generators, transporters, treaters or disposers of health care waste within its area of jurisdiction to ensure compliance with the provisions of this Act;
(c) report annually to the Provincial Minister on the number of incidents of illegal dumping of health care risk waste within its area of jurisdiction, the number of incidents of illegal dumping of health care risk waste pursued in a court of law, and the number of incidents of illegal dumping of health care risk waste successfully convicted in a court of law.

Health Care Waste is produced by hospitals, clinics, physicians, offices, dentists, funeral homes, veterinary clinics and medical- and research laboratories.

Currently only 10-15% of medical waste is considered infectious. The enormous volumes of health care waste requiring special handling and disposal for all infectious and pathological waste are responsible for the current re-evaluation of the terminology for health care waste.

The modern trend in infection control is dictated by the risk posed by the procedure and not by the diagnoses. Thus health care waste is divided into Health Care General Waste (HCGW) and Health Care Risk Waste (HEALTH CARE RISK WASTE). Health Care Risk Waste generally indicates infectious waste, pathological waste, sharps, chemical and pharmaceutical waste, radioactive and cytotoxic waste.

2.5 THE WESTERN CAPE HEALTH CARE WASTE MANAGEMENT AMENDMENT ACT, 2007: WESTERN CAPE HEALTH CARE RISK WASTE MANAGEMENT REGULATIONS, 2013

These regulations were published in the Western Cape: Provincial Gazette Extraordinary 15 March 2013. These are the regulations set out in the Schedule under section 14 of the Western Cape Health Care Waste Management Act, 2007.

The regulations address the requirements for packaging, storage, internal transport, external transport, vehicles, drivers, treatment and disposal of health care risk waste. Furthermore the required training, registration of health care risk waste generators, transporters, treaters and disposers, reporting, auditing and record keeping is discussed. Health care waste management plans must be prepared by those who meet the criteria listed. The required actions regarding compliance notices are also listed.

All addressed forms in the regulations are given in the Annexures:

Annexure 1:	Minimum Requirements for health care risk waste containers
Annexure 2:	Minimum Requirements for storage of health care risk waste in terms of regulation 3
Annexure 3:	Form 1, Minimum Requirements for a tracking document
Annexure 4:	Minimum Requirements for information to be contained in a Health Care Waste Management Plan
Annexure 5:	Form 2.1, IPWIS registration form for health care risk waste generators, transporters, treaters and disposers
Annexure 6:	Form 2.2, Registration Certificate; Form 3.1, Monthly record keeping form for generators; Form 3.2 Monthly record keeping form for transporters, treaters and disposers
Annexure 7:	Form 4.1, Compliance Notice; Form 4.2, Compliance certificate

2.6 NATIONAL WATER ACT (ACT NO. 36 OF 1998)

The purpose of the Act is to ensure that the Municipality's water resources are protected, used, developed and conserved in ways which take into account the protection of aquatic and associated ecosystems; that addresses basic human needs; that ensures the reduction and prevention of pollution; and that meets international obligations.

Section 19 of the NWA deals with landowners and users involved in any activity or process which causes, has caused or is likely to cause pollution of water resources. Such landowners and users are obliged to take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. This includes measures to comply with any prescribed waste standard or management practice.

Furthermore, the NWA requires anyone who intends undertaking a water use, as defined, to obtain a licence. The water uses that may be relevant to waste management activities are:

- discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; and
- disposing of waste in a manner which may detrimentally impact on a water resource.

The applications for permits, licenses and exemptions made before the promulgation of this Act could still be dealt with in terms of the Water Act 1956 (Act No. 54 of 1956).

2.7 NATIONAL ENVIRONMENT MANAGEMENT: AIR QUALITY ACT 2004 (ACT NO. 39 OF 2004)

This Act has been promulgated in order to reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development. It also provides for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.

The object of this Act is:

a) to protect the environment by providing reasonable measures for-

    (i) the protection and enhancement of the quality of air in the Republic;
    (ii) the prevention of air pollution and ecological degradation; and
    (iii) securing ecologically sustainable development while promoting justifiable economic and social development; and

b) generally to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people.

2.8 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy (2011) presents Government's strategy for integrated waste management for South Africa and is a legislative requirement of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) The purpose of the Strategy is to achieve the objectives of the Waste Act.

The National Waste Management Strategy presents a long-term plan (up to the year 2016) for addressing key issues, needs and problems experienced with waste management in South Africa. The strategy gives effect to the Bill of Rights, Constitution of South Africa, Act 107 of 1998, on the basis of which the people of South Africa have the right to an environment that is not detrimental to their health. Furthermore, the strategy translates into action Government's policy on waste as set out in the Draft White Paper on Integrated Pollution and Waste Management for South Africa (published in 1998).

The objective of integrated pollution and waste management is to move away from fragmented and uncoordinated waste management to integrated waste management. Such a holistic and integrated management approach extends over the entire waste cycle from cradle to grave, and covers the prevention, minimisation, generation, collection, transportation, treatment and final disposal of waste. Integrated waste management thus represents a paradigm shift in South Africa's approach to waste management, by moving away from waste management through impact management and remediation and establishing instead a waste management system which focuses on waste prevention and waste minimisation.

The Strategy is built around a framework of eight goals, as listed below, along with specific goals that must be reached by 2016. All listed targets must be reached by 2016:

Goal 1: Promote waste minimisation, reuse, recycling and recovery of waste.

- 25% of recyclables diverted from landfill sites for re-use, recycling or recovery.
- All Metropolitan Municipalities, secondary cities and large towns have initiated separation at source programmes.

Goal 2: Ensure the effective and efficient delivery of waste services.

- 95% of urban households and 75% of rural households have access to adequate levels of waste collection services.
- 80% of waste disposal sites have permits.

Goal 3: Grow the contribution of the waste sector to the green economy.
- 69 000 new jobs created in the waste sector.

Goal 4: Ensure that people are aware of the impact of waste on their health, well-being and the environment.
- 80% of municipalities running local awareness campaigns.
- 80% of schools implementing waste awareness programmes.

Goal 5: Achieve integrated waste management planning.
- All Municipalities have integrated their IWMPs with their IDPs and have met the targets set in the IWMPs.
- All waste management facilities required to report to SAWIS have waste quantification systems that report information to WIS.

Goal 6: Ensure sound budgeting and financial management for waste services.
- All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs.

Goal 7: Provide measures to remediate contaminated land.
- Assessment complete for 80% of sites reported to the contaminated land register.
- Remediation plans approved for 50% of confirmed contaminated sites.

Goal 8: Establish effective compliance with and enforcement of the Waste Act.
- 50% increase in the number of successful enforcement actions against non-compliant activities.
- 800 EMIs appointed in the three spheres of government to enforce the Waste Act.

The strategy aims to reduce both the generation and the environmental impact of waste. It presents a plan for ensuring that the socio-economic development of South Africa, the health of its people and the quality of its environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management. It establishes a waste management system that concentrates on avoiding, preventing and minimising waste and makes provision for waste management services for all by extending an acceptable standard of waste collection, as well as transportation, treatment and disposal services to all communities.

While the long-term objective of the strategy is waste prevention and minimisation, a number of remedial actions such as improved waste collection and waste treatment are required in the shorter term due to prevailing inadequate waste management practices.

The Strategy is an institutionally inclusive strategy because its achievement relies on participation by numerous role-players in the public sector, private sector and civil society.

To implement the Waste Act, government must:
- Draft legislation, regulations, standards and Integrated Waste Management Plans.
- Regulate waste management activities through licenses and enforce their conditions.
- Implement the South African Waste Information System (SAWIS)
- Coordinate waste management activities using a system of Waste Management Officers.
- Give effect to multilateral agreements and ensure proper import and export controls.
- Progressively expand access to at least a basic level of waste services and plan for future needs.
- Facilitate the establishment of a national recycling infrastructure.
- Provide the framework for the remediation of contaminated land.
- Work in partnership with the private sector and civil society.

2.9 WHITE PAPER ON EDUCATION AND TRAINING (1995)

The 1995 *White Paper on Education and Training* states that "environmental education, involving an interdisciplinary, integrated and active approach to learning, must be a vital element of **all levels and programmes of the education and training system**, in order to create environmentally literate and active citizens and ensure that all South Africans, present and future, enjoy a decent quality of life through the sustainable use of resources".

The White Paper advocates environmental education and training **at all levels**. This would include the local government sphere, particularly when it comes to the environmental education & training of government officials and workers.

The education of the youth is the responsibility of national and provincial government. However, the Constitution does state that where the capacity exists, functions can be delegated to local government, and that the spheres of government, while distinctive, are interdependent and interrelated. Local government should support the other spheres of government (such as the national Department of Education, DoE) in areas of its own focus, such as environmental management and sustainable development.

2.10 THE MUNICIPAL SYSTEMS ACT (ACT 32 OF 2000)

This policy outlines the role and responsibilities of local governments as to:

- Provide democratic and **accountable** government for local communities;
- Ensure the provision of services to communities in a **sustainable** manner;
- Promote **social** and economic development;
- Promote a safe and healthy **environment**;
- Encourage the **involvement** of communities and community organisations in the matters of local government, and
- Strive, within its financial and administrative capacity, to achieve the objectives above.

These responsibilities indicate a need for an environmentally educated work force (accountable) as well as an environmentally educated public (involvement). The Municipal Systems Act (32 of 2000) requires municipalities to promote public participation and to build the capacity of residents, councillors and municipal officials to engage in participatory processes. As a means of tracking progress in this area, the executive of a municipality is obliged to report annually on the level of public participation in municipal matters.

Each Municipality must include in its integrated development plan contemplated in Chapter 5 of the Municipal Systems Act, an integrated waste management plan that is consistent with the relevant provincial integrated waste management plan. The annual performance report which must be prepared in terms of section 46 of the Municipal Systems Act must contain information on the implementation of the municipal integrated waste management plan.

2.11 THE MUNICIPAL STRUCTURES ACT, 1998 (ACT NO. 117 OF 1998)

This Act makes provision for the establishment of municipalities in accordance with the requirements relating to categories and types of municipality. It establishes criteria for determining the category of municipality to be established in an area and defines the types of municipality that may be established within each category.

The Act furthermore provides for an appropriate division of functions and powers between categories of Municipality and regulates the internal systems, structures and office-bearers of the municipalities. It also provides for appropriate electoral systems for matters in connection therewith.

2.12 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008) ("THE WASTE ACT")

On 1 July 2009 the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("the Waste Act") came into effect. The Waste Act repealed Section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) ("ECA") and introduces new provisions regarding the licensing of waste management activities.

Provision has been made in the form of legislative and regulatory tools to facilitate and ensure implementation of the Act by all spheres of government.

The Waste Act was published to reform the law regulating waste management in order to protect the health of the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.

The purpose of this Act is to protect health, well-being and the environment by providing reasonable measures for –

- the minimisation of the consumption of natural resources;
- the avoidance and minimisation of the generation of waste;

- the recovery, re-use and recycling of waste;
- the treatment and safe disposal of waste as a last resort;
- the prevention of pollution and ecological degradation;
- securing ecologically sustainable development while promoting justifiable economic and social development;
- promoting and ensuring the effective delivery of waste services;
- remediating land where contamination presents, or may present, a significant risk of harm;
- achieving integrated waste management reporting and planning;
- to ensure that people are aware of the impacts of waste on health and the environment;
- to provide for compliance and generally to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to the health and well-being of people.

The interpretation and application of this Act must be guided by the national environmental management principles set out in section 2 of the National Environmental Management Act.

The Waste Act allows for the compilation of a Waste Management Strategy, national, provincial and local standards.

Municipalities must in terms of their by-laws:

- establish service standards and levels of service for the collection of waste;
- may identify requirements in respect of the separation, compacting and storage of waste;
- may identify requirements for the management of waste, including requirements in respect of the avoidance of the generation of waste and the recovery, reuse and recycling of waste;
- the requirements in respect of the directing of waste to specific treatment and disposal facilities.

Each Municipality must include in its integrated development plan contemplated in Chapter 5 of the Municipal Systems Act, an integrated waste management plan that is consistent with the relevant provincial integrated waste management plan.

The annual performance report which must be prepared in terms of section 46 of the Municipal Systems Act must contain information on the implementation of the municipal integrated waste management plan.

Municipalities must also in terms of the Act:

- conduct municipal activities in accordance with the National Waste Management Strategy and any national or provincial norms and standards;
- compile an integrated waste management plan;
- ensure that waste management services are provided within the municipality in a manner which prioritises the recovery, re-use or recycling of waste and provides for the treatment and safe disposal of waste as a last resort;
- designate a waste management officer;
- ensure that provision is made for the management and collection of litter;
- secure compliance with the objects of this Act that are in the domain of the municipality; and
- implement any other measures that are necessary for securing the objects of this Act that are within the domain of the municipality.

Duty to provide collection services - Every municipality has an obligation to progressively ensure that efficient, effective and affordable waste collection services are provided in its area.

A municipality may, by notice, require any person making use of the municipal collection service to separate specified types of waste from the general waste for the purposes of recovery, re-use or recycling.

In terms of Section 19(1) of the Waste Act, the Minister may publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment. In terms of Section 20 of the Waste Act no person may commence, undertake or conduct a waste management activity except in accordance with the following:

- the requirements or standards determined in terms of Section 19(3) of the Waste Act for that activity; or
- a waste management license issued in respect of that activity, if a license is required.

On 3 July 2009 a list of waste management activities were published. These activities were published in Government Notice 178 in Government Gazette No. 32368 of 3 July 2009. No person may commence with, undertake or conduct these activities unless a waste management license is issued in respect of the activity.

A person who wishes to commence, undertake or conduct an activity listed under Category A must conduct a Basic Assessment process whilst activities listed under Category B requires a Scoping and EIA process to be undertaken.

In terms of Section 49(2) of the Waste Act a decision to grant a waste management license in respect of a waste disposal facility is subject to the concurrence of the Minister responsible for Water Affairs. The Waste Act further specifies that the issuing of a waste management license for a waste disposal facility is subject of the inclusion in the license of any conditions contained in a Record of Decision issued by the Minister responsible for Water Affairs regarding any measures that the Minister responsible for Water Affairs considers necessary to protect a water resource as defined in the National Water Act, 1998 (Act No. 36 of 1998).

2.13 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): LIST OF WASTE MANAGEMENT ACTIVITIES THAT HAS, OR IS LIKELY TO HAVE A DETRIMENTAL EFFECT ON THE ENVIRONMENT. GOVERNMENT NOTICE 37083, 29 NOVEMBER 2013

This notice replaces the 3 July 2009 list of activities that trigger a waste license requirement and because of its impact on financial budgets and budget scheduling, all the activities, quoted verbatim (except where grammatically corrected) from the notice, are listed below:

“GENERAL

No person may commence, undertake or conduct a waste management activity listed in this schedule unless a licence is issued in respect of that activity.

CATEGORY A

3. A person who wishes to commence, undertake or conduct an activity listed under this Category, must conduct a basic assessment process, as stipulated in the environmental impact assessment regulations made under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as part of a waste management licence application.

Storage of waste

(1) The storage of general waste in lagoons.

Recycling or recovery of waste

(2) The sorting, shredding, grinding, crushing, screening or baling of general waste at a facility that has an operational area in excess of 1000m^2.

(3) The recycling of general waste at a facility that has an operation area in excess of 500m^2, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.

(4) The recycling of hazardous waste in excess of 500kg but less than 1 tonne per day calculated as a monthly average, excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.

(5) The recovery of waste including the refining, utilisation, or co-processing of the waste in excess of 10 tonnes but less than 100 tonnes of general waste per day or in excess of 500kg but less than 1 tonne of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process with in the same premises.

Treatment of waste

(6) The treatment of general waste using any form of treatment at a facility that has the capacity to process in excess of 10 tonnes but less than 100 tonnes.

(7) The treatment of hazardous waste using any form of treatment at a facility that has the capacity to process in excess of 500kg but less than 1 tonne per day excluding the treatment of effluent, wastewater or sewage.

(8) The remediation of contaminated land.

Disposal of waste

(9) The disposal of inert waste in excess of 25 tonnes and with a total capacity of 25 000 tonnes, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by or under other legislation.

(10) The disposal of general waste lo land covering an area of more than $50m^2$ but less than $200m^2$ and with a total capacity not exceeding 25 000 tonnes.

(11) The disposal of domestic waste generated on premises in areas not serviced by the municipal service where the waste disposed exceeds 500kg per month.

Construction, expansion or decommissioning of facilities and associated structures and infrastructure

(12) The construction of facilities for waste management schedule activity listed in Category A of this Schedule (not in isolation to associated activity).

(13) The expansion of waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity of this Schedule

(14) The decommissioning of facility for a waste management activity listed in Category A or B of this Schedule.

CATEGORY B

4. A person who wishes to commence, undertake or conduct a waste management activity listed under this Category, must conduct a scoping and environmental impact reporting process, set out in the Environmental Impact Assessment Regulations made under section 24(5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as part of a waste management licence application contemplated in section 45 read with section 20(b) of this Act.

Storage of hazardous waste

(1) The storage of hazardous waste in lagoons excluding storage of effluent, wastewater or sewage.

Reuse, recycling and recovery of waste

(2) The reuse and recycling of hazardous waste in excess of 1 tonne per day, excluding reuse or. Recycling that takes place as an integral part of an internal manufacturing process within the same premises.

(3) The recovery of waste including the refining, utilisation or co-processing of waste at a facility with a facility that processes in excess of 100 tonnes of general waste per day or in excess of 1 tonne of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises.

Treatment of waste

(4) The treatment of hazardous waste in excess of 1 tonne per day calculated as a monthly average; using any form of treatment excluding the treatment of effluent, wastewater or sewage.

(5) The treatment of hazardous waste in lagoons, excluding the treatment of effluent, wastewater or sewage.

(6) The treatment of general waste in excess of 100 tonnes per day calculated as a monthly average, using any form of treatment.

Disposal of waste on land

(7) The disposal of any quantity of hazardous waste to land.

(8) The disposal of general waste to land covering an area in excess of $200m^2$ and with a total capacity exceeding 25 000 tonnes.

(9) The disposal of inert waste to land in excess of 25 000 tonnes, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by or under other legislation.

Construction of facilities and associated structures and infrastructure

(10) The construction of facilities for a waste management activity listed in Category B of this this Schedule (not in isolation to associated waste management activity).

CATEGORY C

5. A person who wishes to commence, under take or conduct a waste management activity listed under this Category, must comply with the relevant requirements or standards determined by the Minister listed below-
   (a) Norms and Standards for Storage of Waste, 2013 or
   (b) Standards for Extraction, Flaring or recovery of Landfill Gas, 2013; or
   (c) Standards for Scrapping or Recovery of Motor Vehicles, 2013.

Storage of waste

(1) The storage of general waste at a facility that has the capacity to store in excess of 100m^3 of general waste at any one time, excluding the storage of waste in lagoons or temporary storage of such waste.
(2) The storage of hazardous waste at a facility that has the capacity to store in excess of 80m^3 of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons or temporary storage of such waste.
(3) The storage of waste tyres in a storage area exceeding 500m^2.

Recycling or recovery of waste

(4) The scrapping or recovery of motor vehicles at a facility that has an operational area in excess of 500m^2.
(5) The extraction, recovery or flaring of landfill gas."

2.14 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL DOMESTIC WASTE COLLECTION STANDARDS, GOVERNMENT NOTICE 33935, 21 JANUARY 2011

The purpose of this publication is to redress past imbalances in the provision of waste collection services. The provision of waste collection services improves the quality of life of the entire community and ensures a clean and more acceptable place to live and work in. The lack of or poor quality waste collection services can however result in a number of environmental and human health problems.

It is recognised that South Africa is a developing country and the purpose of the setting of standards is to ensure a service to all while complying with health and safety regulations without unnecessarily changing current creative collection processes as long as they function well and deliver a service of acceptable standard to all households. These National Domestic Waste Collection Standards are therefore applicable to all domestic waste collection services throughout the country.

This notice distinguishes between the levels of service relating to waste collection. It further states that equitable waste collection services must be provided to all households within the jurisdiction of the municipality. In areas where travelling distances and the resulting costs may render regular waste collection services impractical, the municipality, through by-laws, must allow for more feasible alternative ways of waste handling, such as on-site disposal.

From here regulations and guidelines on separation at source, collection of recyclable waste, receptacles, bulk containers, communal collection points, and frequency of collection, drop-off centres and collection vehicles are given.

Existing Occupational Health and Safety legislation must be adhered to and the general health of waste collection workers must be addressed by ensuring they receive:
(i) regular medical check-ups to ensure their health and well-being;
(ii) appropriate personal protective equipment e.g. gloves, masks, overalls and raincoats, gumboots; and
(iii) on-going training on health and safety issues.

The role of the Waste Management Officer regarding waste awareness and the handling of complaints are prescribed. The municipality must create awareness amongst households about the following:
(i) the types of waste collection services provided;
(ii) separation at source - the removal of recyclables and re-usable waste from the general household waste;
(iii) the potential of composting of some of the household waste and the benefit of such to the household;
(iv) the unacceptability of illegal dumping and littering;

(v) measures to be taken against individuals that litter and dump waste illegally;
(vi) the cost of cleaning up illegal dumping and littering, and the implications on household waste collection rates; and
(vii) the advantages of reporting illegal dumping activities.

The municipality must provide clear guidelines to households about the following:
(i) the different types of waste generated in households;
(ij) separation of non-recyclable and non-reusable household waste from compostable waste and recyclable waste;
(iii) appropriate containers for each type of waste;
(iv) removal schedules for each type of waste; and
(v) what to do with waste other than those waste forming part of the regular schedule of waste collection services.

Awareness raising and guideline communications must be done at regular intervals to ensure that all households are well informed about the issues listed above.

The Waste Collection customer service standards for Kerbside collection are described with respect to collection schedule, interruptions, the replacement of bins, collection during holidays and general points.

2.15 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL WASTE INFORMATION REGULATIONS, GOVERNMENT NOTICE 35583, 13 AUGUST 2012

The purpose of the Regulations is to regulate the collection of data and information to fulfil the objectives of the national waste information system set out in section 61 of the Act.

The Regulations apply uniformly to all persons conducting an activity listed in Annexure 1 of the Regulations. A person who conducts an activity in a province that has an established waste information system in terms of section 62 of the Act and collects the minimum information required by the Regulations must submit the information to the provincial waste information system.

Where a province has developed waste information regulations that are compatible with the Regulations, a person who conducts an activity contemplated in Annexure 1 to the Regulations must comply with the provincial waste information regulations.

2.16 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): WASTE CLASSIFICATION AND MANAGEMENT REGULATIONS, GOVERNMENT NOTICE 36784, 23 AUGUST 2013

The purpose of the Regulations is to regulate the classification and management of waste in a manner which supports and implements the provisions of the Act; to establish a mechanism and procedure for the listing of waste management activities that do not require a Waste Management License; to prescribe requirements for the disposal of waste to landfill; to prescribe requirements and timeframes for the management of certain wastes and to prescribe general duties of waste generators, transporters and managers.

Chapter 2 of the Notice covers Waste Classification and Safety Data Sheets. Chapter 3 covers Waste Management in General, Waste Treatment and Waste Disposal to Landfill. Chapter 4 covers Waste Management Activities that do not require a Waste Management License. Chapter 5 covers the Record Keeping and Waste Manifest System. Chapter 6 covers General Matters which includes Implementation and Transitional Provisions and Offences and Penalties.

Chapter 7 contains the following Annexures:
Annexure 1: Wastes that do not require Classification or Assessment
Annexure 2: Waste Manifest System Information Requirements

2.17 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR THE ASSESSMENT OF WASTE FOR LANDFILL DISPOSAL, GOVERNMENT NOTICE 36784, 23 AUGUST 2013

The purpose of the Norms and Standards is to prescribe the requirements for the assessment of waste prior to disposal to landfill in terms of Regulation 8(1)(a) of the Regulations.

The Standard Assessment Methodology to assess waste for the purpose of disposal to landfill the following are required:

- Identification of chemical substances present in the waste
- Sampling and analysis to determine the total concentrations (TC) and leachable concentrations (LC) of the elements and chemical substances that have been identified in the waste and that are specified in section 6 of the Norms and Standards.

Within 3 years of the date of commencement of the Regulations, all analyses of the TC and LC must be conducted by labs accredited by SANAS. The TC and LC limits must be compared to the threshold limits specified in section 6 of these Norms and Standards. Based on the TC and LC limits the specific type of waste for disposal to landfill must be determined in terms of section 7.

2.18 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR DISPOSAL OF WASTE TO LANDFILL, GOVERNMENT GAZETTE NO 36784, 23 AUGUST 2013

The purpose of the Norms and Standards are to determine the requirements for the disposal of waste to landfill as contemplated in regulation 8(1)(b) and (c) of the Regulations.

Chapter 2 describes and illustrates the Landfill Classification and corresponding minimum engineering design requirements for the Containment Barriers. These are for Class A to Class D landfills. The requirements that are to be included in an application for a waste management license are stipulated.

The waste acceptance criteria for disposal to landfill are summarised as follows:

Waste assess in terms of the Norms and Standards for Assessment of Waste for Landfill Disposal set in terms of section 7(1) of the Act must be disposed to a licensed landfill as follows:

Waste Type	Landfill Disposal Requirements
Type 0	Disposal to landfill not allowed
Type 1	Disposed at Class A landfill or H:h/H:H landfill as specified
Type 2	Disposed at Class B landfill or G:L:B+ landfill as specified
Type 3	Disposed at Class C landfill or G:L:B+ landfill as specified
Type 4	Disposed at Class D landfill or G:L:B- landfill as specified

Waste listed in section 2(a) of Annexure 1 to the Regulations must be disposed as follows:

Listed Waste	Landfill Disposal Requirements
Domestic waste. Business waste not containing hazardous waste or hazardous chemicals. Non-infectious animal carcasses. Garden waste.	Disposed at Class B landfill or G:L:B+ landfill as specified
Post-consumer packaging. Waste tyres.	Disposed at Class C landfill or G:L:B+ landfill as specified
Building and demolition waste not containing hazardous waste or hazardous chemicals. Excavated earth material not containing hazardous waste or hazardous chemicals.	Disposed at Class D landfill or G:L:B- landfill as specified

Unless assessed in terms of the Norms and Standards for Assessment of Waste for Landfill Disposal set in terms of Section 7(1) of the Act and disposed of in terms of section 4(1) of these Norms and Standards, the following waste included in section 2(b) of Annexure 1 to the Regulations must be disposed as follows:

Listed Waste	Landfill Disposal Requirements
Asbestos waste; Expired, spoilt or unstable hazardous products; PCBs; General waste, excluding domestic waste, which contains hazardous waste or hazardous chemicals; Mixed, hazardous chemical wastes from analytical labs and labs from academic institutions in containers less than 100 litres.	Disposed at Class A landfill or H:h/H:H landfill as specified

Waste that has been classified in terms of the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (2nd Edition, 1998; DWAF) prior to the Regulations coming into operation, may be accepted and disposed of as set out below for a period not exceeding 3 years after the date of coming into operation of the Regulations:

Waste	Landfill Disposal Requirements
Hazardous Waste - Hazard Rating 1 or 2	Disposed at Class A landfill or H:H landfill as specified
Hazardous Waste - Hazard Rating 3 or 4	Disposed at Class A landfill or H:h landfill as specified
Hazardous Waste - Delisted	Disposed at Class B landfill or G:L:B+ landfill as specified
General Waste	Disposed at Class B landfill or G:S/M/L:B-/B+ landfill as specified

The Norms and Standards lists prohibitions and restrictions on the disposal of waste to landfill which comes into effect after the timeframes indicated for each waste and activities from the date of the Regulations coming into operation.

2.19 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): FEE STRUCTURE FOR CONSIDERATION AND PROCESSING OF APPLICATIONS FOR WASTE MANAGEMENT LICENSES, TRANSFER AND RENEWAL THEREOF, GOVERNMENT GAZETTE NO 37383, 28 FEBRUARY 2014

These regulations apply to the above applications excluding community based projects funded by government grants or applications made by organs of state. The commencement date is 1 April 2014. Payment details are discussed regarding the different applicable fees which are listed as follows:

Application	Fee
Application for a waste management license for which basic assessment is required in terms of the Act.	R2 000.00
Application for a waste management license for which S&EIR is required in terms of the Act.	R10 000.00
Application for a transfer of a waste management license in terms of section 52(2) or for the renewal of a waste management license in terms of section 55(2) of the Act.	R2 000.00

2.20 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR THE EXTRACTION FLARING OR RECOVERY OF LANDFILL GAS, GOVERNMENT GAZETTE NO 37086, 29 NOVEMBER 2013

The purpose of these Norms and Standards is to aim at controlling the flaring, extraction or recovery of landfill gas at facilities in order to prevent or minimise the potential negative impacts on the bio-physical and socio-economic environments. It describes how these facilities must be designed, operated, monitored and decommissioned

2.21 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR THE SCRAPPING OR RECOVERY OF MOTOR VEHICLES, GOVERNMENT GAZETTE NO 37087, 29 NOVEMBER 2013

These Norms and Standards is applicable to a vehicle scrapping or recovery facility with an operational area exceeding 500m^2 and describes how such a facility must be designed, operated, monitored and decommissioned.

2.22 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR THE STORAGE OF WASTE, GOVERNMENT GAZETTE NO 37088, 29 NOVEMBER 2013

The purpose of these Norms and Standards is to provide a uniform national approach to the management of waste storage facilities, ensure best practice and to provide minimum standards for the design and operation of new and existing facilities. These Norms and Standards are applicable to waste storage facilities that have the capacity to store in excess of $100m^3$ general waste continuously or 80 m^3 of hazardous waste continuously.

2.23 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR ORGANIC WASTE COMPOSTING, GOVERNMENT GAZETTE NO 37300, 7 FEBRUARY 2014

These Norms and Standards is applicable to organic waste composting facilities that have the capacity to process in excess of 10 tonnes but less than 100 tonnes of compostable organic waste per day and describes how such a facility must be designed, operated, monitored and decommissioned.

2.24 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): NATIONAL NORMS AND STANDARDS FOR THE REMEDIATION OF CONTAMINATED LAND AND SOIL QUALITY, GOVERNMENT GAZETTE NO 37603, 2 MAY 2014

The purpose of these Norms and Standards is provide a uniform national approach to determine the contamination status of an area and to limit uncertainties about the most appropriate criteria and method to apply in such an assessment. Also to provide minimum standards for assessing necessary environmental protection measures for remediation activities.

2.25 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008): LIST OF WASTE MANAGEMENT ACTIVITIES THAT HAS, OR IS LIKELY TO HAVE A DETRIMENTAL EFFECT ON THE ENVIRONMENT. GOVERNMENT NOTICE 37604, 2 MAY 2014

The Waste Management Activities List under paragraph 2.15 above has been amended by the deletion of Category B activity 3 (8).

2.26 DRAFT VERSION: NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE AMENDMENT ACT, 2014 (ACT NO. 26 OF 2014): IMPLEMENTATION GUIDE

The purpose of the document is to provide a guideline to the public on how the Department of Environmental Affairs will interpret and implement the National Environmental Management: Waste Amendment Act, 2014 (Act No. 26 of 2014). As the Act is implemented and new issues emerge, the Department will provide further guidance and add to the document.

2.27 NATIONAL POLICY FOR THE PROVISION OF BASIC REFUSE REMOVAL SERVICES TO INDIGENT HOUSEHOLDS. GOVERNMENT NOTICE 34385, 22 JUNE 2011

The main criterion for determining the qualifying recipients of Basic Refuse Removal (BRR) services is registration on a municipality's indigent register as provided for by the indigent policy of the municipality.

The following criteria can be used in the absence of or in addition to the main criterion to determine the qualifying recipients of the BRR services:

- Level of income: Monthly net household income of members of less than or equal to *two old age pensions (including children/individuals who may get state grants).*
- Residence status: Everybody residing in the municipality provided their indigent status have been verified.
- Special considerations: All child headed households, households headed by pensioners and people with disabilities
- Value of property (need to note that inherited properties might give false income level status).
- Any other criteria as determined by the specific municipality

A municipality may for practical reasons, declare certain areas or clusters as qualifying recipients of BRR. Examples may include low-income areas and high density, urban informal areas.

- Such declarations have added advantages in terms of administrative feasibility (logistics and costs included) especially where rate collection is challenging.
- A municipality may declare certain low density rural areas as areas where on-site disposal is deemed to be an appropriate waste management option.

If the recipient does not fall under a qualifying indigent area, he/she may register as an indigent at his/her municipality. The municipality must set out certain dates/times for these registrations.

2.28 WHITE PAPER: POLICY ON POLLUTION PREVENTION, WASTE MINIMISATION, IMPACT MANAGEMENT AND REMEDIATION (MARCH 2000)

In line with international trends and our national objectives of efficient and effective management of our nation's resources, priority is given to prevention of waste. Unlike previous policies that focused predominantly on so called "end of pipe" treatment, this White Paper underscores the importance of preventing pollution and waste and avoiding environment degradation.

Effective mechanisms to deal with unavoidable waste will remain necessary, but much greater attention must be directed to the introduction of preventative strategies aimed at waste minimisation and pollution prevention. Ever increasing urban and industrial development throughout the world is leading to levels of pollution, which seriously threaten the natural resources upon which humankind depends for its survival.

Although South Africa has extensive environment, pollution and waste management legislation, responsibility for its implementation is scattered over a number of departments and institutions.

The fragmented and uncoordinated way pollution and waste is currently being dealt with, as well as the insufficient resources to implement and monitor existing legislation, contributes largely to the unacceptably high levels of pollution and waste in South Africa.

The White Paper on Integrated Pollution and Waste Management will result in a review of the existing legislation and the preparation of a single piece of legislation dealing with waste and pollution matters.

Pollution and waste management is not the exclusive preserve of government. The private sector and civil society have crucial roles to play. The fostering of partnerships between government and the private sector is a prerequisite for sustainable and effective pollution and waste management to take place. Similarly, the spirit of partnerships and co-operative governance between organs of state is equally important due to the crosscutting nature of pollution and waste management.

Monitoring and collection of information on pollution and waste generation are crucial for the implementation of pollution and waste reduction measures. Moreover, the sharing of such information and creating awareness about the issues will enable all stakeholders, including communities, to gain a better understanding of the relation between pollution, waste management and the quality of life.

The White Paper proposes a number of tools to implement the objectives of the policy it sets out. The most significant of these is a legislative programme that will culminate in new pollution and waste legislation. This proposed legislation, amongst other things, will address current legislative gaps, and clarify and allocate responsibilities within government for pollution and waste management.

The policy presents seven strategic goals, which are as follows:

Goal 1: Effective Institutional Framework and Legislation
Goal 2: Pollution Prevention, Waste Minimisation, Impact Management and Remediation
Goal 3: Holistic and Integrated Planning
Goal 4: Participation and Partnerships Governance in Integrated Pollution and Waste Management
Goal *5:* Empowerment and Education in Integrated Pollution and waste Management
Goal 6: Information Management
Goal 7: International Cooperation

The role of Local Government

Municipalities will be responsible for providing waste management services, and managing waste disposal facilities. Specific functions to be carried out by municipalities will include:

- compiling and implementing general waste management plans, with assistance from provincial government
- implementing public awareness campaigns
- collecting data for the Waste Information System
- providing general waste collection services and managing waste disposal facilities within their areas of jurisdiction
- implementing and enforcing appropriate waste minimisation and recycling initiatives, such as promoting the development of voluntary partnerships with industry, including the introduction of waste minimisation clubs where possible, regional planning, establishment and management of landfill sites, especially for regionally based general waste landfills.

2.29 PLANNING DOCUMENTS

The Provincial Spatial Development Framework (November 2005)

The PSDF states that there is a concern that a number of waste landfill sites are not properly managed. In addition to the challenges of managing increasing waste volumes and decreasing land available for waste disposal, the Western Cape, along with other Provinces, has to deal with waste management problems caused by inequitable development and inadequate service delivery. Waste issues are often closely associated with poverty, environmental health and social justice issues. The following Policies have particular reference:

RC32 All municipalities shall follow an integrated hierarchical approach to waste management consisting of the following, avoidance/reduce, reuse, recycle, composting, treatment and final disposal. The Waste Management System shall consist of a collection service from the source, (domestic, office or factory) transfer stations and waste disposal sites. (M)

RC33 Waste separation at source shall be mandatory in all domestic households and institutions and businesses including high density and multi-storey buildings from a date to be announced. Initially only organic (vegetable and plant matter) and inorganic (usually dry, cardboard, glass, plastics, paper, builders' rubble) waste shall be separated. (M)

RC34 Material Recovery Facilities shall be established at all Transfer Stations. (M)

RC35 Engage with the raw material and packaging industries and reach agreement to ensure demand for recycled products. (G)

RC36 Every urban settlement should have a Transfer Station within a maximum of 5kms from the town centre, inside the Urban Edge. These Transfer Stations shall be properly managed according to best practice so as to minimise nuisance to surrounding neighbours. They should also be open after hours and on the weekends and their locations shall be well publicised so as to ensure that the community uses them. Furthermore, charges should not be levied on loads brought to transfer stations. Micro enterprises wanting to process waste and trade second hand materials on site should be encouraged. (G)

RC37 Every municipality shall have a Waste Disposal facility site located and operated according to DWAF's minimum requirements that will service the Transfer stations in the urban settlements in that municipality. These sites may or may not be located within the Urban Edge of urban settlements. The main criteria for their location will be to meet satisfactory environmental and transport requirements. (M)

It is the intention of the Western Cape Government to make relevant policies contained in the WCPSDF mandatory in terms of legislation and to include these policies in appropriate legislation. These policies are indicated with a 'M' next to the applicable policy in Chapter 8 of this report. The balance of the policies is indicated with a 'G' to indicate that they are guiding principles. The distinction should be understood as follows:

Mandatory (M) measures refer to policies that are regarded as being of sufficient social, economic or environmental importance as to demand that every effort possible should be made to effectively implement that policy.

Guidelines (G) refer to policies that are intended as general developmental goals and whose detailed implementation may vary due to place specific conditions and therefore requiring a certain amount of flexibility in their application.

2.30 INTERNATIONAL TREATIES

This section lists the international agreements to which South Africa has acceded. The following is as described in section 4.10 of the National Waste Management Strategy 2011:

Various international agreements to which South Africa has acceded relate to waste management. A number of non-binding conventions and protocols are also relevant to waste management. This section summarises the main actions in the NWMS related to implementing international agreements.

2.30.1 The Basel Convention

The Basel Convention, adopted in 1989, has the greatest bearing on the Waste Act as it addresses the trans-boundary movement of hazardous wastes and their disposal, setting out the categorization of hazardous waste and the policies between member countries.

DEA is developing MOUs with the International Trade Administration Commission (ITAC) and the South African Revenue Service (SARS) that effectively address the provisions of the Basel Convention.

DEA is considering accession to the amendments to the Basel Convention that ban the import and export of hazardous wastes. DEA is also currently developing a policy on imports and exports of waste that will address this.
DEA and DTI are jointly addressing the import and export control aspects of the Basel Convention, together with the chemical conventions. Control will happen through ITAC permits and SARS tariff codes.

2.30.2 The Montreal Protocol

The Montreal Protocol Treaty, revised in 1999, protects the ozone layer by phasing out the production of several substances that contribute to ozone depletion, with the aim of ozone layer recovery by 2050. This has relevance for waste management in instances where such obsolete products enter the waste stream. DEA will finalise and publish the National Implementation Plan for the Montreal Protocol. The plan will include the development on an Ozone Depletion Substance (ODS) strategy and regulations will provide for the phasing out of specified substances and their safe disposal. These will be gazetted for public comment in 2012.

2.30.3 The Rotterdam Convention

The Rotterdam Convention promotes and enforces transparency in the importation of hazardous chemicals and whilst it explicitly excludes waste, its implementation may lead to bans on listed chemicals. Some of these chemicals may occur in stockpiles of obsolete chemicals such as pesticides that have been identified as a major waste management challenge. Extended producer responsibility schemes will be used to effectively manage obsolete chemicals.

A study to investigate the extent of manufacture, use, import and export of new chemicals listed in the Rotterdam Convention will determine whether South Africa should ratify the newly added chemicals. This document will be finalised in 2012. A process to identify and ban pesticides and industrial chemicals listed in Annex III (that South Africa has not yet banned) has started. Responsible departments will finalise arrangements for banning orders in 2012.

2.30.4 The Stockholm Convention

The Stockholm Convention on Persistent Organic Pollutants (POPs), which entered into force in 2004, requires that member countries phase out POPs and prevent their import or export. Parties to the Convention are also required to undertake the following responsibilities:

- Develop and implement appropriate strategies to identify stockpiles, products and articles in use that contain or are contaminated with POPs.
- Manage stockpiles and wastes in an environmentally sound manner.
- Dispose of waste in a way that destroys or irreversibly transforms POPs content.
- Prohibit recycling, recovery, reclamation, direct re-use or alternative use of POPs.
- Endeavour to develop strategies to identify contaminated sites and perform eventual remediation in an environmentally sound manner.

A National Implementation Plan has been developed and it will be reviewed in light of the Waste Act and finalised in 2012.

Furthermore, a study has been initiated to investigate the extent of manufacture, use, import and export of new POPs listed in this convention. The study will determine if South Africa should ratify the newly added POPs. This document will be finalised in 2012.

2.31 MUNICIPAL BY-LAWS

The Theewaterskloof Municipality have revised their solid waste by-laws since the previous IWMP revision, but awaits Council approval at this time. Until approval the by-law attached as **Annexure 2** remains in effect**.** The draft version of the new solid waste by-laws can be viewed on the Theewaterskloof Municipality's website.

As these by-laws have recently been revised, no upcoming revision is planned or required. Once the draft by-laws have been approved and published, they can replace the current Annexure 2 in an IWMP update.

3. EXISTING WASTE MANAGEMENT IN THEEWATERSKLOOF MUNICIPALITY

3.1 AWARENESS AND EDUCATION

The lack of public awareness of the gravity of the problem of sustainable waste management has a significant impact on the effectiveness of the management of waste.

Our poor history of waste management in South Africa means that we pay little attention to our lifestyle insofar as how it affects the environment. However, when an environmental problem is noted and the public are made aware of the need for action, there is no stronger lobby. This has been evident with the Eskom power crisis in recent years. This situation has caused that people in South Africa have looked to alternative sources of electricity from small- to large scale. It is now an almost every-day sight to see people applying electricity saving practices at home. For example, solar panels are frequently seen on roofs (and these panels are becoming more efficient) and hot water geysers are fitted with timers so as not to consume electricity throughout the whole day or are simply switched on and off as needed. Creating awareness of the issue of sustainable waste management may have a similar outcome. With landfill airspace becoming more and more restricted, alternative options minimising or avoiding the need for disposal becomes necessary.

The successful implementation of the Theewaterskloof IWMP will require that all persons within the Municipal boundaries are aware of waste issues as an integral part of the creation of a healthy environment. They should be empowered to play their specific role in the development and implementation of the waste management initiatives.

Public participation is closely linked with education and public awareness. The significant difference between awareness programmes and public participation is that public awareness focuses on disseminating information, whereas public participation aims at obtaining participation, comment, input and feedback from the public.

3.1.1 Public Awareness and Education in Theewaterskloof Municipality

The Municipality does not implement any solid waste awareness and education campaigns at this stage. All public awareness and education is done by the private sector and municipal involvement is forthcoming and discussed under the implementation section of this document.

Greyton Transition Town (GTT) is a registered Non-profit organisation which was first established in 2012. They have since undertaken many projects to educate the community in terms of environmental education, waste management, natural building and vegetable gardening. They have established eco-crews which conduct activities etc. with participating schools. GTT have opened swop shops which supports the community and conduct river and street clean-ups in which the children participate, building their awareness on the need to keep their environment clean. – www.greytontransition.co.za

TWK Recycling & Waste Management is a private recycler, but is involved in community projects, education and supporting local entrepreneurs in the recycling industry. They are also supporting and involved with the swop shops in the Theewaterskloof. – www.twkrecycling.co.za

3.2 WASTE QUANTITIES AND TYPES

3.2.1 Methodology for General Waste Survey

For the purpose of determining the waste quantities in Theewaterskloof Municipality, the Municipality provided estimated quantities from the respective towns. There are no weighbridges to record waste totals, but each town uses the D:EA&DP's waste calculator to estimate the total waste. Not all data of the previous year was available, but average quantities was calculated from the available information. The Municipality also reports these quantities to IPWIS.

Theewaterskloof Municipality also disposed waste from Helderstroom, Tesselaarsdal, Botrivier, Villiersdorp and Grabouw until the end of 2011 at the Karwyderskraal landfill. The disposed tonnages were recorded with a weighbridge and this data was also used in the calculations. The Karwyderskraal landfill will be extended at the end of 2014 and it is anticipated that waste will again be transported there from Theewaterskloof when the site is fully operational again, which is anticipated in April 2015. Until then, the waste is disposed at the Caledon landfill.

The disposal rate at the Caledon landfill was estimated from the volume of airspace consumed between the May 2012 and September 2014 topographical surveys.

The information received from the private recyclers was also factored in to calculate the generated waste totals from the disposed quantities.

To estimate the waste generation per sub-area, the population statistics from census (refer Paragraph 1.4) were also used to calculate the total tonnage of municipal solid waste (MSW), using typical waste generation figures per person of each sector of the community. The average quantities obtained from the disposal data and surveys were used to calibrate the generation figures below.

3.2.2 Volumes of General Waste generated

The above information and totals were used to determine the average waste generation rates for the different income groups of the Theewaterskloof population and to estimate the quantities generated per sub-area. Note that the quantities in **Table 3-2** do not include builder's rubble nor rural area waste. Builder's rubble quantities fluctuate monthly and is not dependent on population waste generation, but rather economy related.

Table 3-1: Calculated Average Waste Generation Rates

Income group	kg/person/day
Very Low & Low	0.37
Middle	0.77
High & Very High	1.92

The waste generation and quantities in Theewaterskloof Municipality can then be shown as in **Table 3-2**:

Table 3-2: Waste Quantities calculated for Theewaterskloof Municipality

Sub-area	Population (2014)	Waste Generated in Tonnes/year (2014)	Population (2015)	Waste Generated in Tonnes/year (2015)	Population (2016)	Waste Generated in Tonnes/year (2016)	Population (2017)	Waste Generated in Tonnes/year (2017)	Population (2018)	Waste Generated in Tonnes/year (2018)	Average Waste Generation Factor for Area in kg/p/d
Goniwe Park	4 645	780	4 717	792	4 789	804	4 863	816	4 938	829	0.46
Villiersdorp SP	2 371	1 076	2 408	1 093	2 445	1 110	2 483	1 127	2 521	1 144	1.24
Nuwedorp B	3 458	992	3 511	1 007	3 565	1 023	3 620	1 039	3 676	1 055	0.79
Genadendal SP1	4 341	1 081	4 407	1 097	4 475	1 114	4 544	1 131	4 614	1 149	0.68
Bereaville	735	144	746	147	758	149	769	151	781	153	0.54
Genadendal SP2	851	187	864	190	878	193	891	196	905	199	0.60
Dennehof SP	126	67	128	68	130	69	132	70	134	71	1.46
Bosmanskloof	952	222	966	225	981	228	996	232	1 012	235	0.64
Heuwelkroon	1 193	271	1 212	275	1 231	279	1 249	284	1 269	288	0.62
Greyton SP	766	422	778	429	790	435	802	442	815	449	1.51
Riviersonderend SP	5 493	1 462	5 578	1 484	5 664	1 507	5 751	1 530	5 839	1 554	0.73
Elgin SP	999	304	1 014	309	1 030	313	1 046	318	1 062	323	0.83
Swannie River	242	157	246	159	249	162	253	164	257	167	1.78
Nuwedorp A	905	506	918	514	933	522	947	530	962	538	1.53
Rooidakkies	3 445	633	3 498	642	3 552	652	3 607	662	3 663	672	0.50
Pineview North	4 240	1 812	4 305	1 840	4 372	1 868	4 439	1 897	4 507	1 926	1.17
Pineview	14 175	3 264	14 394	3 315	14 615	3 366	14 840	3 418	15 069	3 470	0.63
Grabouw SP	1 599	833	1 623	845	1 648	858	1 674	872	1 699	885	1.43
Dennekruin	1 514	403	1 537	410	1 561	416	1 585	422	1 609	429	0.73
Snake Park	5 622	1 118	5 709	1 135	5 796	1 152	5 886	1 170	5 976	1 188	0.54
Middleton SP	1 008	388	1 024	394	1 039	400	1 055	406	1 072	412	1.05
Caledon SP	4 060	2 084	4 122	2 116	4 186	2 149	4 250	2 182	4 316	2 215	1.41
Uitsig	3 656	1 035	3 712	1 051	3 769	1 067	3 827	1 083	3 886	1 100	0.78
Tjotjombeni	729	166	740	168	751	171	763	174	775	176	0.62
Bergsig	5 195	1 964	5 275	1 995	5 356	2 025	5 439	2 056	5 522	2 088	1.04
Botvilla	1 294	307	1 314	312	1 334	317	1 355	322	1 376	327	0.65
Botrivier Dorpsgebied	670	241	680	245	691	248	701	252	712	256	0.99
Botrivier SP	3 803	1 042	3 862	1 058	3 921	1 074	3 982	1 091	4 043	1 108	0.75
Total	**78 086**	**22 960**	**79 289**	**23 314**	**80 510**	**23 673**	**81 750**	**24 037**	**83 009**	**24 407**	**0.81**

3.2.3 Commercial and Industrial Waste

Due to unavailable separate data, commercial and industrial waste is included in the above totals.

3.2.4 Garden Waste

From the waste calculator data, the average percentage of garden waste by mass of the waste stream is 12%, which equals 2835 tonnes per annum.

3.2.5 Public Cleansing Waste

Separate data is not available and is included in the above totals.

3.2.6 Builder's Rubble

Builder's rubble quantities fluctuate significantly, but the average total can be estimated as 3835 tonnes per annum.

3.2.7 Recoverable Material Volumes

The Department of Environmental Affairs and Development Planning (DEA&DP) commissioned a study in 2007 to determine the characterisation of the disposed waste at various landfills in the Overberg District. From that study, the anticipated average waste composition of the Theewaterskloof Municipality can be derived to include the following recyclable materials (by mass):

Paper and Card board:	20.8%
Plastics:	14.3%
Glass:	4.5%
Metal:	3%

The Sustainable Cities Institute (United States) and California Department of Resources Recycling and Recovery recommend that the American Society for Testing and Materials (ASTM) standards are followed when collecting samples for waste characterisation to be statistically representative. Their proposed method was developed to obtain characterisation from the disposed waste stream. For Disposal Facility type sampling, which was the case in the above study, a minimum total of 30 samples of 90kg each for the residential sector or 40 samples of 90kg each for the non-residential sector should be used. Another requirement is that the samples to be taken are spread over at least two seasons.

According to the abovementioned characterisation report, samples were taken at the Caledon disposal site. The combined total of samples measured 501.3kg.

To align a new waste characterisation study with the above guidelines in order to obtain data with a high level of confidence, the following is recommended:

- 30 samples of 90kg each are to be sampled randomly at the Caledon landfill, Riviersonderend landfill, Genadendal landfill and Greyton transfer station spread over the year. (Total samples split between the transfer stations)
- The following schedule is proposed to obtain representative samples from the waste stream: One sample per day, Monday to Saturday, for one week of every second month, starting in January as the first month and November as the last. This will amount to a total of 36 samples spread over all four seasons and every day of the week.
- The requirement for this exercise per disposal facility will then be 5 workers to take samples and categorise waste, employed for a total of 36 days throughout the year. They can be employed as part of the Extended Public Works Programme (EPWP). For EPWP, working with an average of R120 per person per day, this totals R21600.00. The team can be led by the Municipality's waste manager and also be trained by him or someone delegated by him. A total of R5000.00 is estimated if a consultant then reworks the data and reports on the gathered data. This can also be done by the Municipality to limit expenses.

As none of the Theewaterskloof disposal sites have weighbridges to measure accurate quantities, the other option would be to conduct the study at the Karwyderskraal landfill, because it has weighbridges and a large portion of Theewaterskloof's waste will be diverted there when the new cell is in operation.

The 2007 characterisation report is still the best available representation of the Theewaterskloof waste stream. To conduct a waste characterisation study that meets the above statistical requirements will require data collected over an entire year. Until such a study is commissioned and completed, the existing report is used for the purposes of this IWMP.

From the waste composition as reflected in the 2007 report, it can be calculated that the total volume of recoverable materials that are theoretically available in the waste stream will be as indicated in Table 3-3. These characterisation percentages were applied to the waste stream of the permanent population.

Table 3-3: Quantities of Available Recoverable Materials

Sub-area	PAPER/ CARD (t/a)	PLASTICS (t/a)	GLASS (t/a)	METAL (t/a)
Goniwe Park	156	107	34	22
Villiersdorp SP	221	152	48	32
Nuwedorp B	202	139	44	29
Genadendal SP1	219	150	47	32
Bereaville	29	20	6	4
Genadendal SP2	38	26	8	5
Dennehof SP	14	9	3	2
Bosmanskloof	45	31	10	6
Heuwelkroon	55	38	12	8
Greyton SP	87	60	19	13
Riviersonderend SP	296	204	64	43
Elgin SP	62	43	13	9
Swannie River	32	22	7	5
Nuwedorp A	104	72	23	15
Rooidakkies	127	87	27	18
Pineview North	371	255	80	54
Pineview	659	453	143	95
Grabouw SP	171	118	37	25
Dennekruin	82	56	18	12
Snake Park	225	154	49	32
Middleton SP	79	54	17	11
Caledon SP	428	294	93	62
Uitsig	210	144	45	30
Tjotjombeni	33	23	7	5
Bergsig	401	276	87	58
Botvilla	62	43	13	9
Botrivier Dorpsgebied	49	34	11	7
Botrivier SP	211	145	46	30
Total	**4455**	**3063**	**964**	**643**

The above theoretical figures give a total of approximately 9125 tonnes per annum, which is 40% of the generated waste stream. It should be noted that this reflects the recyclable portion of the waste stream only as the mathematical representation. The full 40% cannot be seen as recoverable in the practical sense, at least not yet.

Due to the methods of collection, i.e. the collection of mixed un-separated household waste, a large amount of deterioration and contamination of potentially recoverable material takes place. Post-collection recovery (as is currently the norm in South Africa) implies that only a part of the above tonnages are available for recovery and recycling, due to contamination. For that reason separation at source is considered to be the preferred methodology to increase the volumes and value of recovered materials. Even with source separation some contamination still takes place, but less than mixed bag waste.

Although experience has shown that participation by the public is largely economy driven, the current trend is that separation at source, which implies that recoverable materials are separated by the home owner and “given” to the municipality (or Service Provider) for free, is mainly supported by the middle and higher income groups, whereas the low and very low income groups support buy-back centres or swop-shops where recoverable materials are bought/traded from the residents.

However, recently acquired data (measured quantities in Drakenstein Municipality over 5 years, Overstrand Municipality over 3 years and Swartland Municipality over 10 years) illustrates that the implementation of source separation only leads to a 1% increase in over-all recovered material volume. This small increase may be attributed to the fact that source separation was only implemented in a certain group of neighbourhoods and not throughout the whole of the area where the data was received. If one looks at the statistics per neighbourhood, the increase in material recovery is reportedly 15%. With these relatively small gains in recovery, the Municipality should evaluate the economic feasibility of implementing a source separation system. It is still the preferred collection method, but expensive to implement and would probably receive lower priority as opposed to alternative strategies and action plans that need to be executed by the Municipality in the upcoming years.

Recent statistics obtained from the Drakenstein Municipality show that participation rates, based on number of households, are as following: The Middle income group participation rates vary between 12-25% and the High income group participation vary between 35-40%. The low and very low income groups participate at an average of 11-15%.

With the assumed strategy of source separation and "clean" Material Recovery Facilities where the source separated materials are sorted into its various groups and sub-groups, and assuming that middle and high income groups participate at a 45% average and low and very low income groups participate at a 15% average, it can be calculated that the current (2014) recovery volumes will be as indicated in **Table 3-5. Note that these quantities represent what can be expected if only the source separated portion of the waste stream is processed at a "clean" MRF.**

Table 3-5: Calculated Volumes of Recovery of Source Separated Materials

Sub-area	**Participating Waste (t/a)**	**PAPER/ CARD (t/a)**	**PLASTICS (t/a)**	**GLASS (t/a)**	**METAL (t/a)**
Goniwe Park	174.3	7.6	1.5	3.5	0.5
Villiersdorp SP	446.5	19.5	3.8	8.8	1.3
Nuwedorp B	357.9	15.6	3.1	7.1	1.1
Genadendal SP1	357.0	15.6	3.1	7.1	1.1
Bereaville	41.9	1.8	0.4	0.8	0.1
Genadendal SP2	58.4	2.5	0.5	1.2	0.2
Dennehof SP	28.2	1.2	0.2	0.6	0.1
Bosmanskloof	70.0	3.1	0.6	1.4	0.2
Heuwelkroon	86.0	3.8	0.7	1.7	0.3
Greyton SP	181.1	7.9	1.6	3.6	0.5
Riviersonderend SP	496.9	21.7	4.3	9.8	1.5
Elgin SP	112.1	4.9	1.0	2.2	0.3
Swannie River	69.1	3.0	0.6	1.4	0.2
Nuwedorp A	218.4	9.5	1.9	4.3	0.7
Rooidakkies	157.1	6.9	1.3	3.1	0.5
Pineview North	739.9	32.3	6.3	14.7	2.2
Pineview	1024.4	44.7	8.8	20.3	3.1
Grabouw SP	354.9	15.5	3.0	7.0	1.1
Dennekruin	138.7	6.1	1.2	2.7	0.4
Snake Park	309.5	13.5	2.7	6.1	0.9
Middleton SP	154.8	6.8	1.3	3.1	0.5
Caledon SP	885.0	38.7	7.6	17.5	2.7
Uitsig	377.5	16.5	3.2	7.5	1.1
Tjotjombeni	52.6	2.3	0.5	1.0	0.2
Bergsig	784.0	34.2	6.7	15.5	2.4
Botvilla	101.5	4.4	0.9	2.0	0.3
Botrivier Dorpsgebied	93.0	4.1	0.8	1.8	0.3
Botrivier SP	359.4	15.7	3.1	7.1	1.1
Total	**7870.7**	**343.8**	**67.5**	**155.8**	**23.6**

Assumptions for Source Separation: 45% participation Mid & High Income groups
15% participation Low & Very Low Income groups
Recovery % actual data from WastePlan: 21% recovery of available Paper and Cardboard
6% recovery of available Plastics
44% recovery of available Glass
10% recovery of available Metals

The above “realistic” volumes can be increased when additional facilities such as buy-back centres are commissioned in low and very low income group communities. There are already a number of swop-shops established in Theewaterskloof and are discussed under 3.5.1.

3.2.8 Paper and Cardboard

Paper and Cardboard form the foundation for any recovery venture, due to the relative stable demand and numerous recycled products made from recovered paper.

Waste paper is transformed from one type to another during the recycling process. The supply and demand for waste paper, although stable, is cyclical in nature, and therefore marketing patterns have to be adapted accordingly.

Some of the factors that contribute to this cyclical demand for recovered paper are:

- difficulty for mills to carry large stock
- periodic mill shut-downs result in fluctuations in demand
- paper stock is considered perishable and thus hazardous to store
- space for storage of stock is limited and costly

Some materials produced with recycled paper pulp include: newspapers, packaging, bags, tissue and towels, corrugated boxes, shoe boxes and files, egg cartons and fruit packing layers.

If paper and cardboard products are clean and separated into different types, significantly higher prices are fetched for the recovered materials.

3.2.9 Glass

Glass recovery for recycling has had a very erratic history, due to only one recycler having a monopoly in the market. When the capacity of the kilns is full, the price used to drop dramatically due to an over-supply and no demand. Fortunately this situation has stabilized and a constant market for recovered glass is currently prevailing.

The separation of glass is very successful in separation at source activities since it is easy to identify by the home owners. Experience in the City of Cape Town has shown that most home owners whom participate in separation at source also wash their glass products before putting it in the recyclables bag.

3.2.10 Plastic

Several types of plastics are typically recycled, i.e. PET (transparent plastic bottles e.g. 2 litre cool drink bottles), HDPE (milk containers), LDPE and mixed plastics. Recycled PET is used in the manufacture of small moulded products, such as handles, sporting goods and furniture. Recycled HDPE is used for producing flowerpots, dustbins and a variety of other containers. Mixed plastics are normally used for the manufacture of outdoor furniture, pallets, and plastic timber.

The recent introduction of a levy on shopping bags has caused the amounts arriving at the landfill to reduce dramatically. Less plastic bags are disposed of, as they are recovered and are now manufactured of better quality and thicker plastic.

In order to recycle plastics using current traditional methodology, it has to be sorted into the various categories, and washed if contaminated by the other wastes. Alternative technologies are currently being evaluated (also in South Africa) that could eliminate the need for sorting of plastics.

3.2.11 Metal

Metals are the single most recoverable item in the waste stream. Very little degradation takes place during collection. It follows that a relatively small amount ends up in the waste stream, as all types of metal are removed for re-sale at various stages of the waste handling process.

One of the major components of ferrous wastes is the steel can (95% of all cans in the Metropolitan Areas). Non-ferrous metals such as Aluminium and Copper are very scarce in our waste streams, due to its extremely high salvaging value. These are usually removed at source.

3.2.12 Economic Sustainability of Waste Recovery

Although the recovery of materials of value from the waste stream for recycling or re-use is one of the basic operations in future integrated waste management, the question regarding its financial and economical sustainability should always be asked and answered.

Local experience over the last decade has shown that the South African recycling market, or rather the recycled product market, is very small and very susceptible to unforeseen activities, e.g. if one paper mill burns down, the effect on the waste paper market, and the prices, is significant. The South African "market" is simply too small to absorb these types of set-backs.

For this reason it is commendable that D:EA&DP had a study conducted into sustaining the local recycling industry.

But one must consider the economical sustainability and not only the financial sustainability. Economic sustainability considers the whole life-cycle cost and not only the rands and cents of a specific financial year and taking into consideration the avoided costs of airspace saving and also the cost on the environment for the resultant smaller utilisation of virgin resources. An interesting stipulation in the Waste Act, Section 17 (1) (a), is that one may not recover materials from waste if it costs more environmental resources to recover, than it would to dispose of that material – a good example of the total or life-cycle costing principle.

Prices for recovered materials vary greatly from city to city and province to province, from baled to unbaled, from dirty to clean and from material type. External factors also play a significant role such as the oil price, e.g. due to a previous low crude oil price of approximately US$43 per barrel had caused new plastic to be cheaper than recycled plastic – cheaper, not necessarily more economical. The result was that recyclers at that moment (January 2009) could not even give their LDPE plastic away where only a month before it was sold for R1500/tonne.

The above does not imply or insinuate that recovery should not be supported, but that both recovery AND the establishment of a recycled goods market should be supported. This is an aspect that cannot be addressed on a local authority level, but must be addressed on a Provincial and/or National level to optimise economy of scale.

Benefits must also be shared. For example, if a municipality saves airspace and transport cost due to recovery, a portion of that saving (avoided costs) should be passed on to the recovery effort to ensure that it is sustainable. If not, as was proven in SA previously, the recovery effort closes down and the municipality loses its avoided cost saving.

The January 2014 prices for recovered materials delivered in Cape Town are displayed in Table 3-6.

Table 3-5: January 2014 Prices of Recovered Materials in Waste Stream

MATERIAL	PRICE IN RAND/TON FOR BALED MATERIAL
Card board	800
White Paper	1200
Newsprint	650
Glossy Paper	450
Mixed Paper	580
Metals (Mainly cans)	1300
Glass (All colours, Crushed)	400
Plastic (PET, No 1, White, Blue, Green)	3600
Plastic (PET, No 1, Brown)	1000
Plastic (HDPE, No 2)	2500
Plastic (LDPE, No 4)	1800
Plastic (Polypropylene, No 5)	2500
Plastic (Polystyrene, No 6)	1300

3.2.13 Priority Waste Streams

3.2.13.1 Tyres

In accordance with the recently published Norms and Standards of 23 August 2013, no whole waste tyres may be landfilled, effective from the publication date. Tyres that are landfilled, must be quartered. After five years from the publication date no tyres, quartered or otherwise, may be landfilled. The municipality will have to develop an action plan to manage tyres generated within the municipal area.

An option would be to make use of Tyre Treatment Facilities in the Western Cape, which have legally complied to accept and treat waste tyres.

3.2.13.2 Hazardous and Health Care Risk Waste

The Caledon Provincial hospital has a waste incinerator where the health care waste from the towns in Theewaterskloof are incinerated.

The dangers:

Household hazardous waste include products that contain ingredients that are either toxic, flammable, corrosive or reactive. These can be for example paint, oils and pesticides (from farms as well). If improperly disposed, for example pouring down the drain or dumping at the wrong site, these substances are harmful to the environment and human health and can have long-term effects.

Electronic waste such as computers and televisions contain many hazardous substances and heavy metals. Acidic conditions when these wastes are landfilled can cause the heavy metals to leak out. If this happens on a landfill which is not properly lined, the environment gets contaminated and may even contaminate groundwater.

3.2.13.3 Organic Waste

Accurate data on the organic waste quantities are not readily available and further investigation into the different organic waste streams is required. Obtaining quantities and identifying the generators of these wastes will enable the Municipality to ensure that it is correctly handled and disposed without becoming a threat to human health or the environment.

The main organic waste streams in the Theewaterskloof Municipality are the following:

- Abattoir waste: Apart from contaminated water from abattoirs, the solid waste generated mainly consists of animal parts which cannot be used for human consumption or other purposes like gelatine recovery from hooves. Abattoir waste must be properly handled and disposed of at approved licensed landfill sites. The landfill staff must be trained to ensure that abattoir waste is disposed correctly. For example, the waste must be pre-treated with lime, trenched and immediately covered. The disposal of infectious animal carcasses and waste is not allowed to be landfilled. Non-infectious animal waste and carcasses are allowed to be disposed at licensed landfill sites as per the National Norms and Standards of Waste Disposal to Landfill, August 2013.
- Sewage sludge: If the classification of the sludge from a wastewater treatment plant is not known, it must be determined. The classification (which indicates the microbiological, stability and pollutant class) will allow the different management options to be identified for that particular sludge. In the Theewaterskloof Municipality, it is not likely that the sludge from the various wastewater treatment plants would contain high amounts of heavy metals. This must be verified in each case, but if the classification then allows, the sludge can be managed for beneficial use such as composting. It must be ensured that a license is acquired for this purpose.
- Wet waste from hotels, restaurants, etc. (dailies) and industry: The regulation of waste coming from industry can be monitored as soon as the Industry Waste Management Plans have been implemented. The dailies are collected as part of the municipal waste collection rounds and as such, separate volumes are not recorded or available. Further investigation is required.

3.3 WASTE AVOIDANCE

3.3.1 Waste Avoidance Background

The following diagram illustrates a simplified version of the well-known waste hierarchy with Avoidance being the most favourable and Disposal the least favourable:

Waste avoidance refers to a pro-active approach by industrial as well as domestic waste producers to minimize the volume of waste, by not creating the waste in the first place.

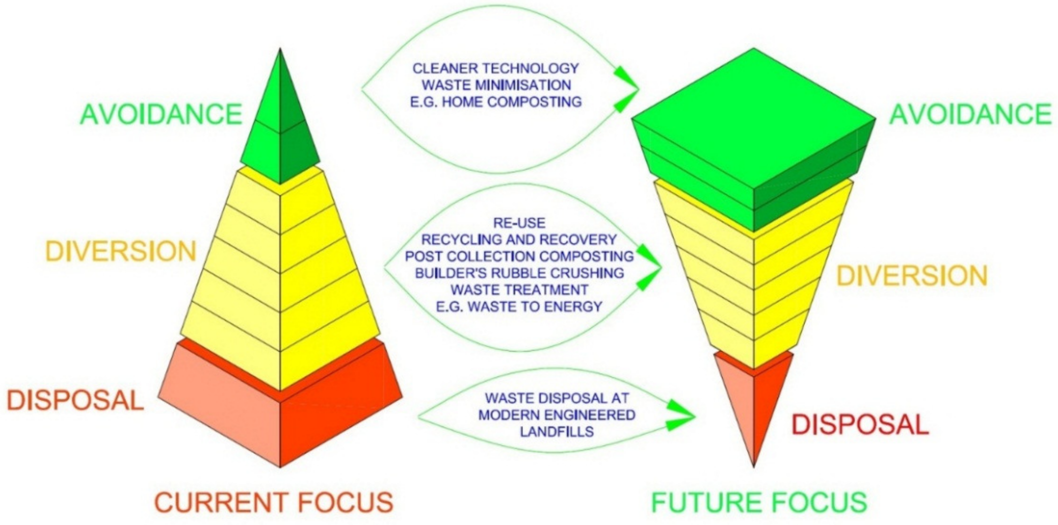


Figure 3-1: Waste Hierarchy

Waste avoidance is a “beginning of the pipe” action that can only work when people understand the full process depicted above.

At the moment waste minimisation through recovery (second tier) is considered a priority in South Africa. Once that can be successfully implemented and the people are educated in the importance of waste reduction, recovery at source (third tier) can be implemented with a reasonable chance of success.

It therefore follows that waste avoidance will be the ultimate and final step in this education process.

On a governmental / legislative level, the introduction of a levy on plastic shopping bags has spurred the production of alternative types of bags, which are re-useable and therefore avoiding the cheap and nasty waste bag that ends up littering our surroundings. However, along with such initiatives must come the required public education surrounding the proper use and impacts of new practices. For example, recent studies have shown that when re-usable bags are used by shoppers, these bags must be regularly washed/cleaned at least once per week. The users of these bags are not in the habit of washing their shopping bags because it was never necessary in the past as the bags were thrown away. Now with the re-usable bags, which are usually left in the car for convenience, that are not cleaned can contain traces of old food and or blood from meat parcels that quickly become breeding grounds for organisms that cause food poisoning. When these unwashed bags are then used to load new groceries into, the food becomes infected by the bag and may cause food poisoning in the persons who eat this food. It is therefore necessary to keep the public aware of such issues to maintain their health while adopting new practices.

In the home, waste avoidance can be practiced by similar efforts where items are used for different purposes than the original intent, possibly suggesting that one purchases alternative products to the norm. Home composting is also considered waste avoidance, as the waste material is converted into a useful gardening resource whilst avoiding the raw product entering the waste stream.

Presently the avoidance of waste in industry has a financial detrimental implication in most cases (e.g. alternative raw products), and only large companies are able to take the leading role through their international experience in this field. Regulatory controls will only be effective if fines result in legal compliance being cheaper than non-compliance. In South Africa, resource and disposal costs are low, providing no financial incentive to reduce consumption or waste in industry. It follows that regulatory instruments are required for implementation on a Municipal level to govern the avoidance of industrial waste in Theewaterskloof.

Regular audits should be conducted by an independent entity on the avoidance practices, to form a basis for applying incentives / penalties.

An important tool for monitoring purposes is a proper Waste Information System (WIS). The Theewaterskloof Municipality is registered on the Integrated Pollutant and Waste Information System (IPWIS) and reports their waste quantities. The Theewaterskloof Municipality makes use of the Department Waste Calculator.

Without a doubt, waste avoidance will become a real and enforced issue in South Africa in the near future, and must be addressed in any Municipal Waste Strategy.

3.3.2 Existing Waste Avoidance in Theewaterskloof Municipality

In Theewaterskloof, the best place to expand waste avoidance would be at the well-established industries on a voluntary basis. A joint venture effort between such industries and the Municipality may be mutually beneficial.

The industry will receive positive advertising of these “green” initiatives through the media, whilst the Municipality will be taking a leading role in South Africa through pro-actively spawning waste avoidance to the benefit of the community and the environment.

Industries in Theewaterskloof are already practicing waste avoidance. The Western Cape Government’s 110% Green programme has launched the “Food Forward” initiative to raise awareness around food wastage, catalyse action and reduce inefficiencies within the food value chain. The project aims to encourage a reduction of food wastage in the Western Cape Province, by mobilising key stakeholders to decrease inefficiencies at every stage of the food chain, from production all the way to consumption.

The following examples were observed by the delegates as part of the Food Forward Project who conducted a tour of industries in Theewaterskloof at the end of August 2014. The SAB malting facilities in Caledon creates high protein animal feed from by-products from the malting process. The Kromco fruit packaging facility sends all fruit that are not selected for packaging for juicing or animal feed. The Elgin Fruit Juice facility sends pulp after juice extraction and fruit not used for juice extraction to the on-site anaerobic bio-digester. The methane produced from this process is used as the major energy source for the facility. – www.westerncape.gov.za

The Municipality can promote waste avoidance by leading by example. Many opportunities exist where small changes can result in waste avoidance. One example is the option to have paperless meetings. If officials have access to laptops or tablets they need not receive the agenda on paper and can keep track and make notes digitally. Wherever it is not necessary to print and use paper, it can be avoided.

Successful waste avoidance will result in further lowering of the demand on the Theewaterskloof waste management infrastructure and the functions of collection, recovery and disposal will be done more efficiently.

3.4 COLLECTION SYSTEMS

3.4.1 Municipal Waste Collection Systems

The fleet of collection vehicles in Theewaterskloof consists of the following:

Table 3-6: Detail of Municipal Waste Services Fleet

TOWN	TYPE	REG. NO.	YEAR	CAPACITY
GRABOUW	COMPACTOR	CAM 13077	2002	15 m^3
GRABOUW	COMPACTOR	CEO 3914	2000	15 m^3
GRABOUW	UD40 : REFUSE CAGE	CAM 17348	2007	12 m^3
CALEDON	COMPACTOR	CAM 5554	1999	15 m^3
CALEDON	COMPACTOR	CAM 16878	2010	12 m^3
CALEDON	UD40 : REFUSE CAGE	CAM 19299	2007	12 m^3
BOTRIVIER	UD40 : REFUSE CAGE	CAM 10198	2007	12 m^3
GENADENDAL/GREYTON	UD40 : REFUSE CAGE	CAM 22148	2009	12 m^3
GENADENDAL/GREYTON	HINO : FLATBED TRUCK	CAM 18506	1994	-
VILLIERSDORP	COMPACTOR	CAM 11874	2009	12 m^3
VILLIERSDORP	REFUSE 'SCOOP'	CAM 22135	2010	-
RIVIERSONDEREND	UD40 : REFUSE CAGE	CAM 15118	2012	12 m^3

It is advisable that collection vehicles should ideally not be operated beyond 7 to 8 years in age since the maintenance costs increase dramatically with age as well as down-time which also has cost implications. It is recommended that all vehicles above 8 years are evaluated to determine the need for replacement.

The towns of Theewaterskloof have the following collection schedules:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Caledon & Botrivier	Site Saviva Riemvasmaak Ambulance Station Hospital Large Shops Mall Casino	Bergsig Uitsig Vleiview Tesselaarsdal (By external service provider)	Caledon Ambulance Station Hospital Large Shops Mall Casino	Botrivier Myddleton (By external service provider)	Site Saviva Riemvasmaak Ambulance Station Hospital Large Shops Mall Casino	
Grabouw	All businesses CBD Houw Hoek Elgin Station Schools Business Park Molteno Park Glen Elgin Industrial Area Elgin	Klipkop Pineview Elfco Beverley Hills Part of Bosbou Laan Molteno Park Ou Dorp Nuwe Dorp Bo Dorp De Wetsdorp	Siteview Snakepark Xola Naledi & Food sites Pineview Ou Kaapse Weg Pineview North Rooidakke 1 Eskom City Council Shoprite Spar Village Café KFC	Dennekruin Waterwese CWP Bags Melrose Place Rooidakke 2 Free Range Chickens Sam's Butchery	All businesses CBD Houw Hoek Elgin Station Schools Business Park Molteno Park Glen Elgin Industrial Area Elgin	All businesses CBD
Genadendal & Greyton	Greyton	Boschmanskloof	Genadendal East	Voorstekraal Bereaville Genadendal West		
Riviersonderend	All food related businesses	Formal & Informal Households - Area 2	Businesses all areas	Formal Households, CBD - Area 1	Businesses all areas	
Villiersdorp	Businesses: Showgrounds, Brown Décor, Delport, V/dorp Onion packers, Afri Flora 1, Andreno Motors, Du Plessis Bouwerke, Alfri Flora 2, Lakeview Farm, Vredelust, Main Street, Rossouw Electrical, Pepstores, Viswinkel, E.N.B. The Computer Shop, Overberg Oogkundige, Medical Centre, BP, Vrederus Annex, Vrederus Old Age Home, Shell, Car Wash Value, Donlo Auto, Post Office, Pam Golding, Kruger Pharmacy, Central Cafe, Vee's Video, Tops, Pop&Lap, Absa, Dentist, Spar, Steyn Take Aways, Yinghua Trading cc, V/Dorp Cash&Carry, One Price Store, Kekkel&Kraai, High Street Cafe, Raimondi's, Clothing Collection, Savers Lane, Buitekantstreet drum, Vleis&Als, Fullhouse, Diamond's, OK, Markie, SAPD, Pap&Vleis, V/Dorp Bande	Households in: Buitekant street, Begonia street, Amarilla street, Surria street, New Crest, Disa street, Bam street, Protea street, Betko Kamp, Watsonia street, Uitbreiding 7, Uitbreiding 11, Destiny	Businesses Villiersdorp & Vyeboom: Brown Décor, Delport, V/dorp Onion packers, Afri Flora 1, Andreno Motors, Du Plessis Bouwerke, Cropmax, Dave K Engineering, Nolan&Seuns, Venter Auto&Marine, V/Dorp Auto Panel, Steyn's Outboard Service, T-Waters Scrap, Boerediens Transport, Ietsie van Als, Neil Viljoen, V/Dorp Trekker Dienste, Vyeboom Savers Lane, Main Street, Rossouw Electrical, Pepstores, Viswinkel, E.N.B. The Computer Shop, Overberg Oogkundige, Medical Centre, BP, Kelkiewyn, Vilko, Malherbe Huis, Shell, Car Wash Value, Donlo Auto, The Green Dragon, Post Office, Kruger Pharmacy, Central Cafe, Vee's Video, Tops, Pop&Lap, Absa, Spar, Steyn Take Aways, Yinghua Trading cc, V/Dorp Cash&Carry, One Price Store, Kekkel&Kraai, High Street Cafe, Clothing Collection, Savers Lane, Buitekantstreet drum, Vleis&Als, Diamond's, OK, Markie, SAPD, Pap&Vleis, V/Dorp Bande	Households: Phillipsdale, Van Riebeeck street, Muller street, Unie lane, Kerk street, Victoria street, Du Toit street, Graaff street, Steenkamp street, Coetzee street, Berg street, Barnard street, Brink street, Maree street, Hugenote street, Gunter street, Lambrecht street, Huis Du Raan, DVG High School, Theresa Huis, Ham street, Van Coppenhage street, Main Street, Auto Electrical, West Side, Goniwe Park, Poekom	Businesses Helderstroom & Villersdorp: Helderstroom, Afri Flora, Brown Décor, Delport, V/dorp Onion packers, Main Street, Rossouw Electrical, Pepstores, Viswinkel, E.N.B. The Computer Shop, Overberg Oogkundige, Medical Centre, BP, Vrederus Annex, Vrederus Huis, Shell, Car Wash Value, Donlo Auto, Post Office, Kruger Pharmacy, Central Cafe, Tops, Pop&Lap, Absa, Spar, Steyn Take Aways, Yinghua Trading cc, V/Dorp Cash&Carry, One Price Store, Kekkel&Kraai, High Street Cafe, Clothing Collection, Savers Lane, Buitekantstreet drum, Vleis&Als, Diamond's, OK, Markie, Marakesh Hotel, Saverslane 2, SAPD, Pap&Vleis, V/Dorp Bande, Willa Kliniek, Oom Nicky, The Handy House	

Wheelie bins are used as well as refuse bags where wheelie bins have not yet been introduced. All formal households receive weekly door-to-door waste collection services. All informal settlements receive weekly waste collection services and as needed. EPWP workers do the clean-up in certain areas. Most of the waste is collected at central collection points at informal settlements.

Farmers can apply for service at the Municipality and then will be provided with a cost to render the service from the finance department. The other option is to acquire a permit from the Municipality to dispose their waste at the available disposal facilities.

There are no formal unserviced areas in the Municipality, except rural areas and farms where service is not feasible or not applied for.

Level of Free Basic Service

There are 4006 registered indigent households in the Theewaterskloof Municipal area who qualify for free basic services. The Municipality reports 100% service to these households.

Table 3-7: Indigent households receiving free basic services

	Jul 2014		
	Households	**Units per month**	**Value**
Caledon	792	1	R 94 987.20
Grabouw	1353	1	R 163 185.70
Villiersdorp	480	1	R 58 081.90
Riviersonderend	508	1	R 61 155.80
Greyton	160	1	R 19 196.40
Genadendal	423	1	R 51 277.70
Botrivier	242	1	R 29 197.00
Tesselaarsdal	48	1	R 5 799.20
Total	**4006**		**R 482 880.90**

3.4.2 Public Cleansing

Public Cleansing involves the cleansing of streets (kerbs and gutters), public open spaces (other than parks and storm water ditches) and areas of illegal dumping.

Illegal dumping that is reported by the public is followed up by the cleansing department and the area is cleaned. Illegal dumping is removed once per week as is necessary.

No separate costs for dealing with illegal dumping are available, but is part of the operational budget.

3.4.3 Public Complaints

The Theewaterskloof Municipality makes use of a formal complaints register. All complaints received are logged on their internal system. The contact numbers for each town are as follows:

- Caledon/Head Office:	(028) 214 3300
- Botrivier:	(028) 284 9538
- Genadendal:	(028) 251 8130
- Grabouw:	(021) 859 2507
- Greyton:	(028) 254 9620
- Riviersonderend:	(028) 261 1360
- Villiersdorp:	(028) 840 1130

The complaint received is forwarded to the relevant department and responsible person. The head of the department should give feedback to the complainant and has to sign off a complaint form on which it must be stated how the complaint was addressed.

It was indicated that mainly two types of complaints are received. One is that refuse has not been collected on the collection day. The Municipality completes the scheduled route and then returns to the complainant's residence to collect the waste.

The second is to report illegal dumping, which the Municipality then tends to.

3.5 WASTE REDUCTION

The Polokwane Declaration was formulated in 2001 by members of Government, whereby a commitment to waste reduction, re-use and recycling was made towards achieving the following goals:

- 50% reduction in waste generation and 25% reduction in waste disposal by 2012
- A plan for Zero waste by 2022

In the January 2011 draft Provincial IWMP for the Western Cape it is stated:

"Consequently, since they have the power to adapt the targets in the Western Cape IWMP, DEA&DP has adjusted the unrealistic "25% of waste diverted from landfill sites by 2012", to a more realistic "15% of waste by 2015"."

It is therefore recommended that Theewaterskloof Municipality strives to achieve 15% of waste diversion by 2015.

Waste reduction can be divided into three main categories, i.e.

1) Separation at source
2) Recovery for recycling from post-collected waste, and
3) Composting of post collected garden waste.

The efficiency of waste minimisation can only be determined through the implementation of a proper WIS as mentioned above. This is necessary to in turn populate the Provincial IPWIS.

This WIS should provide information on an on-going basis regarding the following:

- The quantity, type, quality and sources of materials recovered
- The quantity and quality of compost produced and garden waste processed
- Industrial waste types and volumes, and possible opportunities for waste exchange
- Public education initiatives and data on available literature at public facilities (e.g. libraries, waste minimisation clubs and projects)
- Household awareness campaigns on recycling opportunities
- Waste education (schools level) and training programmes available for the general public, waste workers and officials

3.5.1 Waste Recovery in Theewaterskloof

No recycling facilities or projects have been established by the Municipality. The following private recyclers operate in the Theewaterskloof Municipality:

TWK Recycling & Waste Management is based in Grabouw where collections from Botrivier, Caledon, Genadendal, Greyton, Riviersonderend and Villiersdorp are sorted and processed for recycling. They started recycling operations in 2011. They are actively training and supporting local entrepreneurs to be successful in the recycling industry.

TWK have contracted Boetie Bantom who operates in Genadendal and Edwina Tshinga who operates in Riviersonderend. TWK is planning to expand this endeavour to all towns in Theewaterskloof. They were able to acquire financial support from Polyco in order to provide Boetie and Edwina with required infrastructure, scales and baling bags. Further funding is required to supply them with baling machines and to establish similar contracts with potential contractors in Villiersdorp and Caledon. TWK also co-operate with the Lucky Points Swop Shop in Botrivier and buy the recyclables collected by the Swop Shop on a weekly basis. They are currently in collaboration with the Kogelberg Biosphere Reserve Company: Catchment-2-Coast Project establishing a new Swop Shop in the Slangpark community in Grabouw.

TWK have in the few years since the start of their operations greatly contributed to the establishment of recycling operations and employment opportunities in Theewaterskloof. – www.twkrecycling.co.za

The Theewaterskloof Municipality has acknowledged and supports the initiatives done by TWK. Further support options are recommended in the implementation section of this report.

"The Greyton Transition Town (GTT) is involved with the roll out of four swopshops in the area – in Genadendal, Caledon, Riviersonderend and Villiersdorp. GTT was commissioned by the IDC and TWK Municipality to set up these four programmes. Once a week, in each town, children and adults bring clean and dry recyclable waste to a swopshop where they can exchange it for essentials such as food, clothing, bed linen and stationery. Local recycling entrepreneur, Boetie Bantom, removes the waste, paying for it with fresh vegetables from his farm which are used as stock for the swop shops and as food for the eco-crew children. Around 100 children attend each swop shop every week and contribute around 500 – 700 kgs of recyclable waste each time." – www.greytontransition.co.za

It is estimated that the above recycling efforts divert approximately 3 – 5 % of the generated waste stream from landfill.

3.5.2 Composting

3.5.2.1 Composting Facilities in Theewaterskloof

Composting of garden waste at a centralised composting facility requires approximately a minimum 350 tonnes of garden waste per month in order to achieve financial sustainability. From the waste calculator data recorded thus far, approximately 12% of the generated waste stream is garden waste. This equates to approximately 236 tonnes per month. This makes a centralised composting facility for Theewaterskloof not a financially sustainable option without additional sources of green waste. Agreements can be made with other Municipalities to contribute to a centralised facility.

Organic material that is disposed by landfill and not composted decomposes in the absence of oxygen, that is, anaerobically, and produces methane gas and carbon dioxide while decomposing. These gases are greenhouse gases and must be minimised. Methane is 23 times as effective (bad) as carbon dioxide as a greenhouse gas and all attempts must be made to prevent its generation. During the composting process the decomposition takes place in the presence of oxygen (aerobic) resulting in no methane gas being generated. If the garden waste is simply chipped and used as mulch, it is preferable above disposal by landfill.

3.5.2.2 Home Composting

Home composting in South Africa has traditionally been practiced for the purpose of having an inexpensive and reliable source of compost for the garden. More recently, the realization that composting is a means of conserving resources, saving landfill airspace and the recycling of organic matter, has become the driving force for composting under individuals as well as clubs / associations.

It has been shown that home composting can reduce the waste stream by 20% to 30% if carried out properly. This is a prime example of "reduction at source" or waste avoidance.

This represents probably the only feasible means of composting kitchen waste, as large-scale post-collection composting has proven ineffective on many occasions in South Africa.

Due to a lack of general information conveyed to the private composter in the past, many perceptions of home composting has become that of a stinking pile somewhere in the corner of the garden.

This (and a change in lifestyles) has led to compost becoming a shopping list item to be bought at the supermarket.

Leaflets or other methods of information should be made available to inform the general public of the advantages and "recipe" for making good quality home compost. This should include:
- Bins / container design
- Raw products
- C:N ratio
- Minimum volume
- Preparation
- Moisture content
- Aeration
- Monitoring
- Trouble-shooting

Home composting bins can be bought at selected nurseries throughout the Western Cape. These are normally one of two types. The first type is a moulded plastic bin which comes in two sizes as follows:
- Small – volume approximately 500 litres
- Medium – volume approximately 1000 litres

The second type is one made from chicken wire around a plastic framework. This one is also of approximately 1000 litre capacity. The disadvantage to the chicken wire model is the possibility of leaching, flies and foul odours.

However, it does allow for good aeration, whereas the plastic model may tend to result in anaerobic conditions (rotting) if not manually aerated by turning.

3.5.2.3 Vermicomposting

Vermicomposting refers to the deliberate introduction of earthworms (typically) during early stages of the composting process. These would appear naturally at an advanced stage of natural composting, which would be after stabilization, where macrofauna use some of the microflora as a substrate.

The earthworms have the following beneficial effects on the composting process:
- Reduction of particle size
- Removal of old bacteria, stimulating the growth of new bacteria
- Enriching the compost by excretions high in Nitrogen
- Promotes penetration of oxygen into the compost
- Increases pathogen control
- Produces worm castings, a good soil amendment

Vermicomposting lends itself well to household-sized ventures, as it requires very careful control, but produces very high quality compost in a relative short period of time.

It is a very clean process which does not attract flies.
This type of composting is typically done inside special bins designed for the purpose.

Most kitchen-type wastes can be composted in this manner, although onions, citrus & other acidic foods should be avoided as they can be toxic to the worms.

The worms are also quite sensitive to extreme temperatures, humidity and rain.
Therefore this process does not lend itself to large-scale industrial composting.

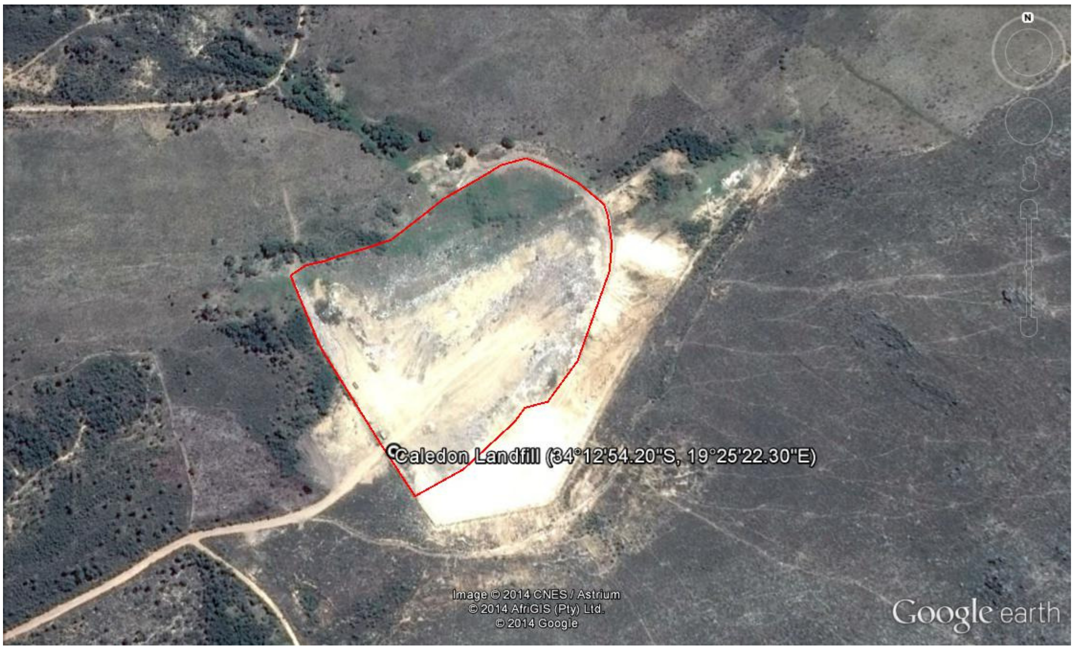
Also the ratio of worms: substrate is approximately 1:4; therefore very large amounts of worms are required for the process. The worm mass doubles in approximately 12 weeks.

3.6 WASTE DISPOSAL

3.6.1 Operating Landfills

The Theewaterskloof Municipality currently utilises the Caledon, Greyton, Genadendal and Riviersonderend disposal sites.

Caledon Landfill is permitted in Terms of Section 20 of the Environment Conservation Act (Act 73 of 1989) with license number 16/2/7/G400/D4/P259 and is classified as G:C:B+ according to the 2005 permit amendment. The site is located to the north of Caledon (34°12’54.20”S, 19°25’22.30”E)


Caledon Landfill (34°12'54.20"S, 19°25'22.30"E)
Image © 2014 CNES / Astrium
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© 2014 Google
Google earth

Figure 3-2: Caledon Landfill

The Caledon disposal facility is externally audited annually. The latest audit was conducted by JPCE in September 2014. The audit found that the site is not compliant with all of its permit conditions. The non-compliances are listed below:

CONDITION	NON/PARTIAL COMPLIANCE	ACTION	TARGET DATE
5.1	Waste is not covered on a daily basis.	Cover waste on a daily basis.	Immediately
3.6	Contaminated run-off cannot be managed effectively due to the large exposed waste area.	Reduce active disposal face size and cover exposed waste.	Immediately
3.8.1	It appeared that the leachate collection dam is not operational.	Re-commission the leachate collection dam.	Immediately
3.8.2	Leachate and contaminated run-off are not treated prior to discharge.	Leachate and contaminated run-off collected in the leachate collection dam should be evaporated and used for dust suppression.	When leachate collection dam has been re-commissioned
3.10	The northern slope of the waste body is too steep and could pose a stability risk.	Pull back the northern slope to a max. grade of 1:3.	a.s.a.p.
3.13	The northern slope of the waste body is too steep and could pose an erosion risk.	Pull back the northern slope to a max. grade of 1:3.	a.s.a.p.
3.14	Sanitation facilities on site is not operational.	Repair and maintain sanitation facilities on site.	a.s.a.p.
4.2	The site is not fenced entirely.	Repair fence around entire site.	Next financial year.
5.2	The work face is too large, which attracts baboons.	Reduce the size of the work face.	a.s.a.p.
5.3	Moveable fences are not used.	Use movable fences	a.s.a.p.
5.4	No windblown dust control measures were observed.	Provide a water truck to control windblown dust.	a.s.a.p.
5.5	Waste disposed on site is reclaimed by informal salvagers.	Employ security measures to prevent informal salvagers from accessing the site.	a.s.a.p.
6.1.4	Leachate monitoring was not performed because the leachate collection dam is not operational.	Repair the leachate collection dam.	Next financial year.
6.3	Monitoring is conducted, but not within the time frames stipulated.	Ensure that monitoring takes place within the stipulated time frames.	Next monitoring session.

From the topographical surveys which are used to determine remaining airspace and usage, it is estimated that the Caledon landfill will reach capacity in 2015.

Caledon Waste Disposal Facility
Summary Table

Type of facility	Waste Disposal Facility
Licensed/Permitted?	Yes
License/Permit Number	16/2/7/G400/D4/P259
Classification	G:C:B+
Location	34°12'54.20"S, 19°25'22.30"E
Estimated Remaining Lifetime	Approximately one year from September 2014
Access Control?	Yes
Operating Hours	08:00 - 17:00 Monday to Saturday
Externally audited?	Yes
Waste Types Received	General household, commercial and industrial waste, garden waste, builder's rubble

The Greyton, Genadendal and Riviersonderend disposal sites are not licensed for operation, but the closure license applications are currently under way as part of the D:EA's project to license all unlicensed disposal sites.

The Genadendal site is located to the south of Genadendal (34°03'22.23''S, 19°34'07.39''E), Greyton site to the south of Greyton (34°03'47.23''S, 19°36'08.85''E) and Riviersonderend site to the north of Riviersonderend (34°08'06.25''S, 19°55'40.68''E).

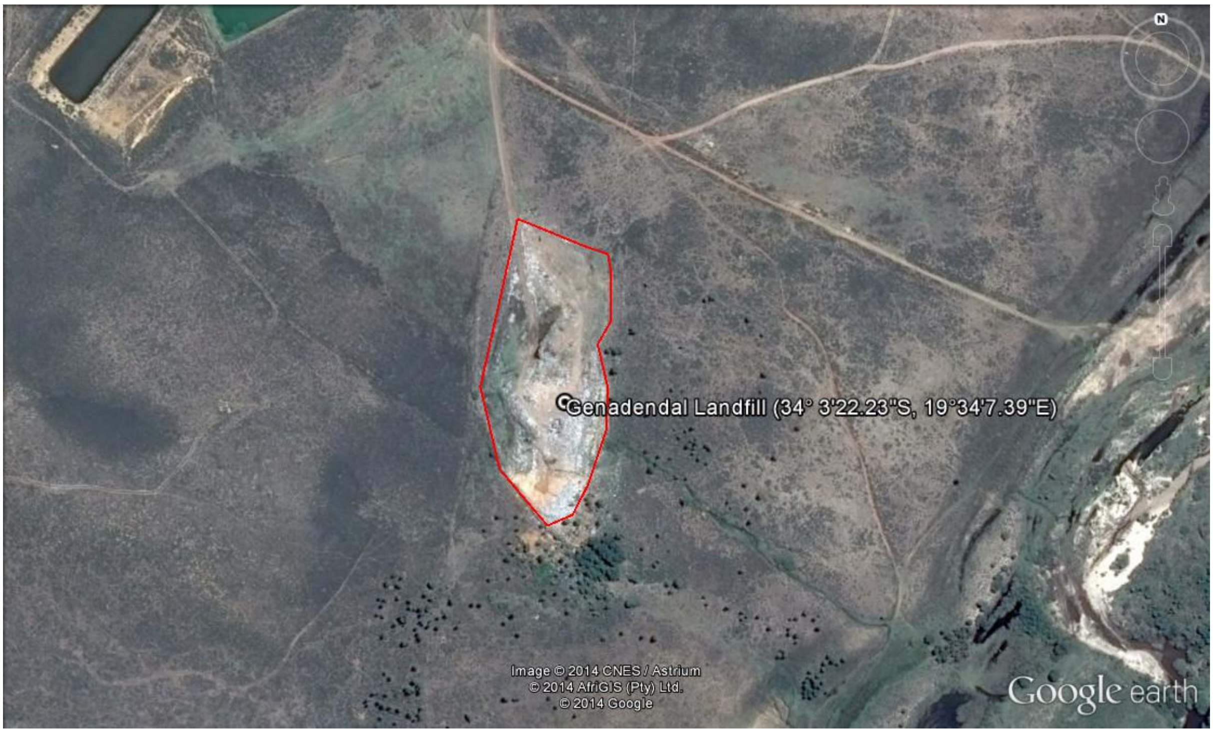
Genadendal Landfill (34° 3'22.23"S, 19°34'7.39"E)
Image © 2014 CNES / Astrium
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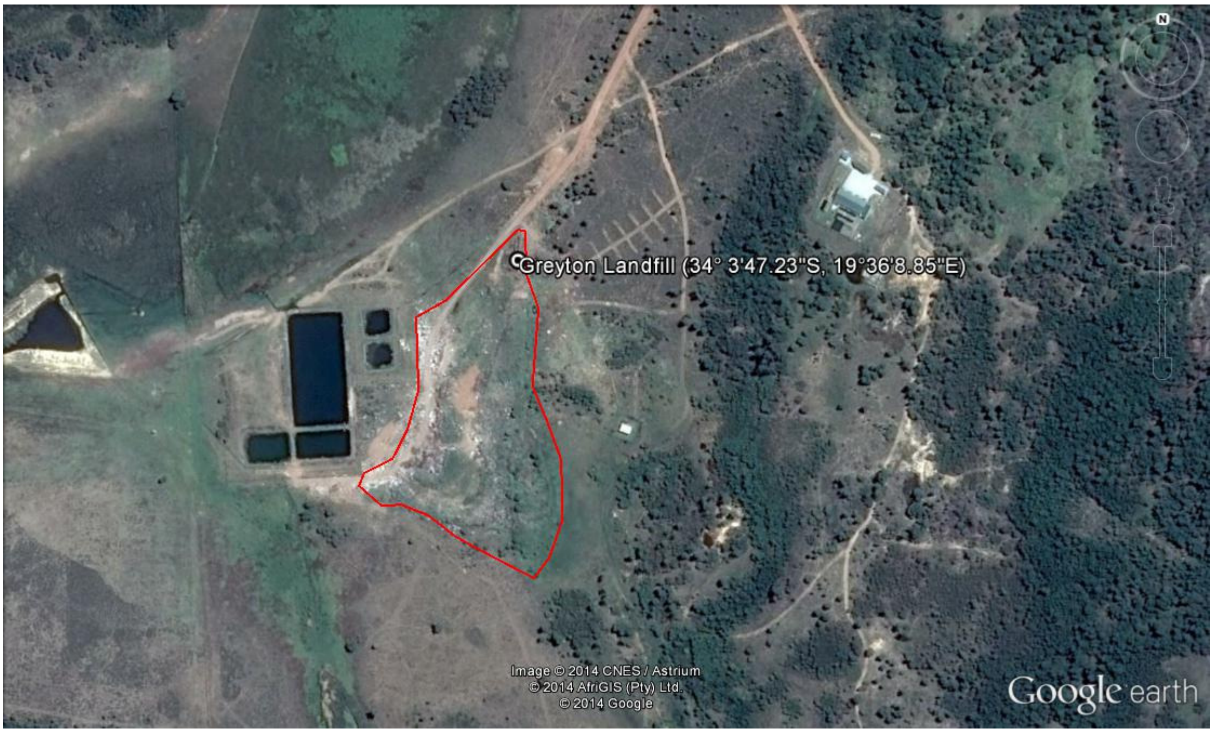
Figure 3-3: Genadendal Landfill


Greyton Landfill (34° 3'47.23"S, 19°36'8.85"E)
Image © 2014 CNES / Astrium
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© 2014 Google
Google earth

Figure 3-4: Greyton Landfill

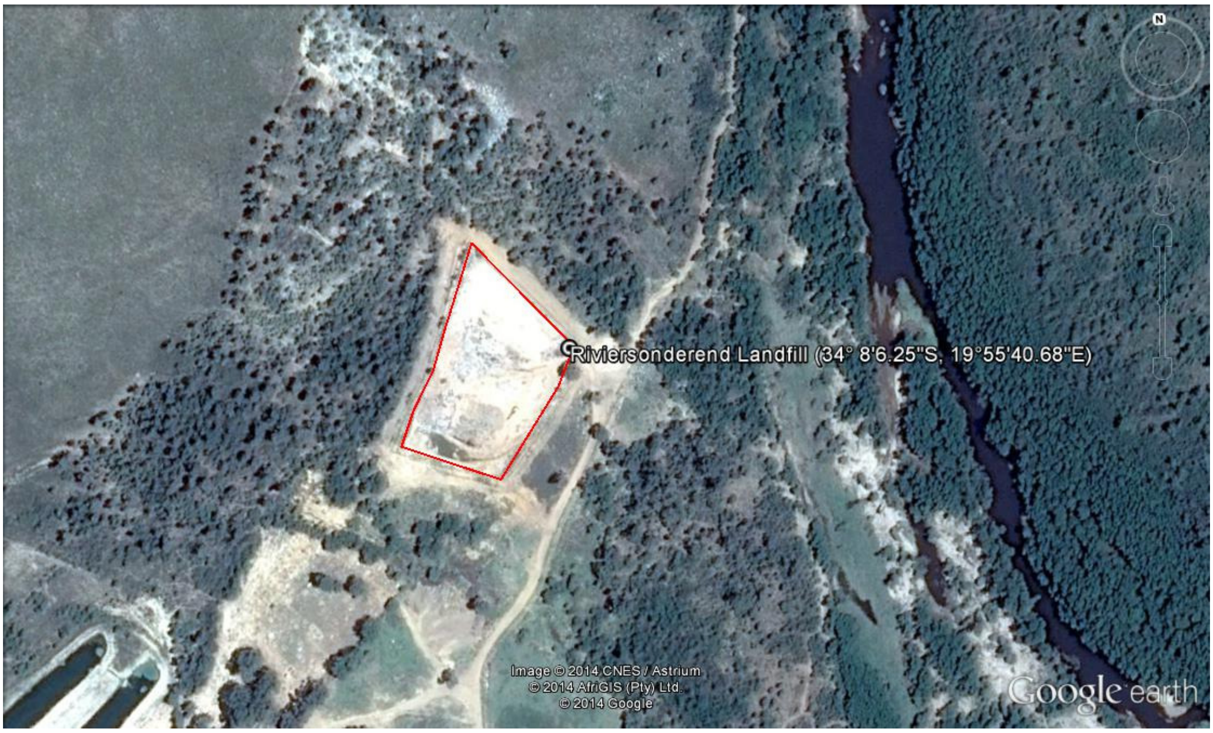

Riviersonderend Landfill (34° 8'6.25"S, 19°55'40.68"E)
Image © 2014 CNES / Astrium
© 2014 AfriGIS (Pty) Ltd.
© 2014 Google
Google earth

Figure 3-5: Riviersonderend Landfill

As these sites are not licensed they are not externally audited. They will be closed and rehabilitated according to the closure license requirements which are currently not issued yet, but have been applied for. The Municipality indicated that these sites will remain operational for a period of approximately 5 years before closure and rehabilitation. This is to ensure that sufficient funding is available to rehabilitate these sites.

3.6.2 Closed Landfills

The Villiersdorp landfill has been closed and replaced by a transfer station at the same location. It is located to the north of Villiersdorp (33°58'36.30''S, 19°17'06.00''E)

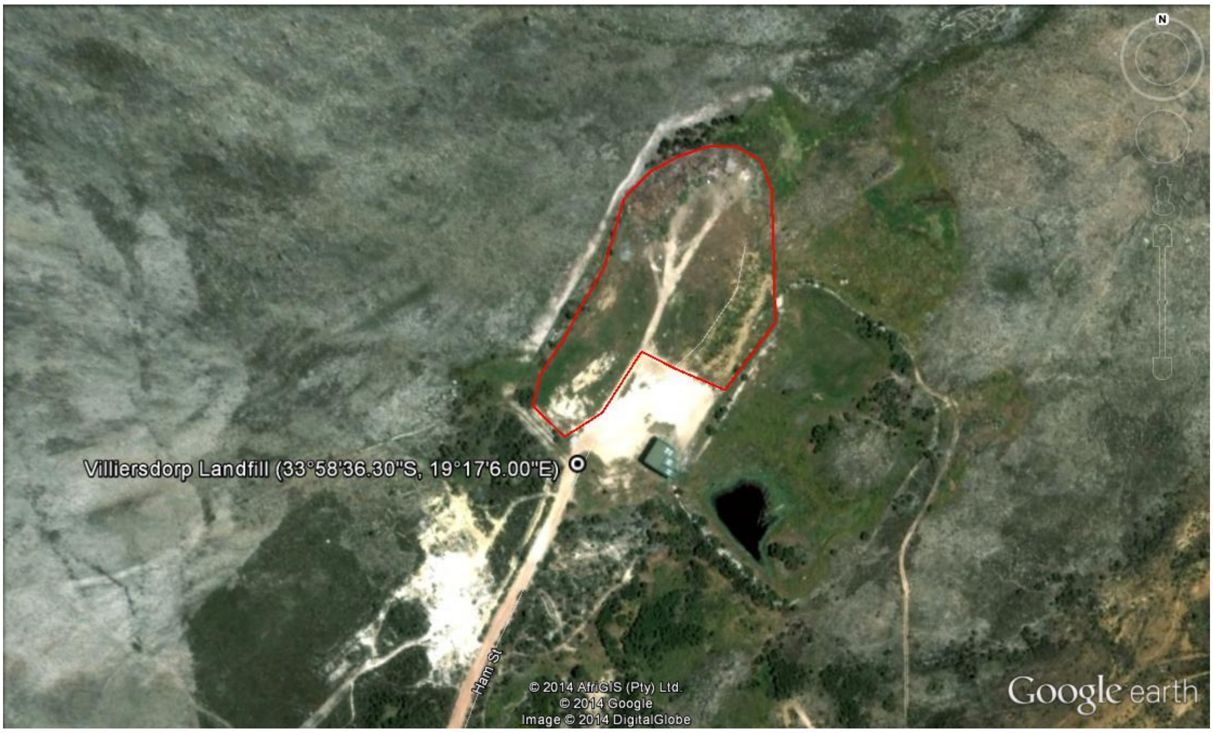

Villiersdorp Landfill (33°58'36.30"S, 19°17'6.00"E)
Ham St
© 2014 AfriGIS (Pty) Ltd.
© 2014 Google
Image © 2014 DigitalGlobe
Google earth

Figure 3-6: Villiersdorp closed landfill (Transfer Station Operational)

The Villiersdorp closed landfill requires rehabilitation.

The following table shows the rehabilitation cost estimates as at June 2014. The implementation section (Section 4) show these cost estimates escalated to the planned year of rehabilitation.

Rehab estimate excl. VAT	**Caledon Landfill**	**Riviersonderend Landfill**	**Villiersdorp Landfill**	**Genadendal Landfill**	**Greyton Landfill**
	R10 194 815.61	**R2 311 496.43**	**R4 695 954.30**	**R4 079 994.88**	**R4 682 808.48**

Provision must be made in the municipal budget in order to rehabilitate the abovementioned sites.

3.6.3 Garden Waste & Builder's Rubble Sites

There are no dedicated garden waste or builder's rubble sites in Theewaterskloof.

3.6.4 Waste Transfer Stations and Public Drop-offs

The Theewaterskloof Municipality operates two Solid Waste Transfer Stations at Grabouw (34° 9'25.32"S, 19° 1'16.30"E) and Villiersdorp (33°58'36.30"S, 19°17'6.00"E). Both facilities are licensed. There is a public drop-off in Botrivier (34°14'0.60"S,19°12'20.30"E) which does not require licensing as its storage capacity is less than 100m^3.

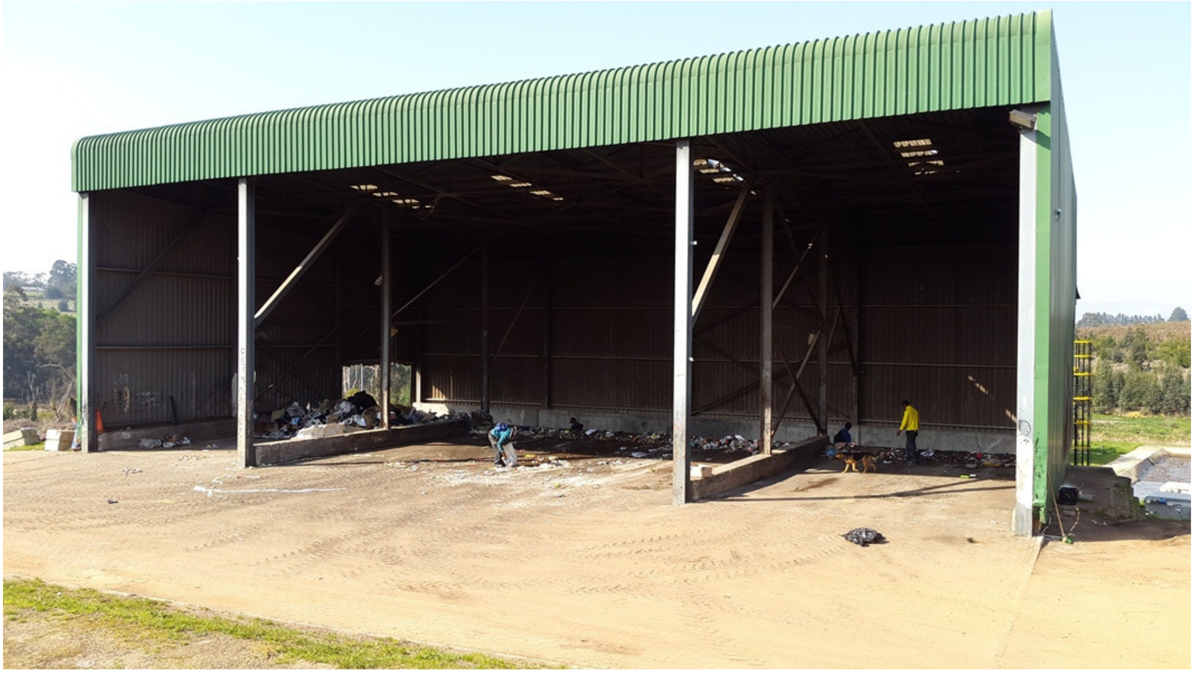


Figure 3-7: Grabouw Solid Waste Transfer Station

The Grabouw transfer station is externally audited annually. The latest audit was conducted by JPCE in September 2014. The audit found that the site is not compliant with all of its permit conditions. The non-compliances are listed below:

CONDITION	NON-COMPLIANCE /PARTIAL COMPLIANCE	ACTION	TARGET DATE
3.8	The internal waste juice drainage system is blocked.	Clean and clear the internal drainage system.	a.s.a.p.
4.4	The entrance gate house was not manned at the time of audit.	Ensure that the entrance gate house is manned during operational times.	a.s.a.p.
5.2	Windblown litter was observed around the site at the time of audit.	Ensure that windblown litter is collected daily.	a.s.a.p.
5.6	Waste that is off-loaded on the apron slab is reclaimed by informal salvagers.	Prevent informal salvagers from accessing the site.	a.s.a.p.

Grabouw Transfer Station
Summary Table

Type of facility	Waste Transfer Station/ Public Drop-off
Licensed/Permitted?	Yes
License/Permit Number	16/2/8/G401/D15/Z2/P472
Classification	G:S:B+
Location	34° 9'25.32"S, 19° 1'16.30"E
Estimated Remaining Lifetime	Indefinite (transfer station)
Access Control?	Yes
Operating Hours	08:00 - 16:30, Monday to Sunday
Externally audited?	Yes
Waste Types Received	Mixed household refuse (black bags), Clean garden waste

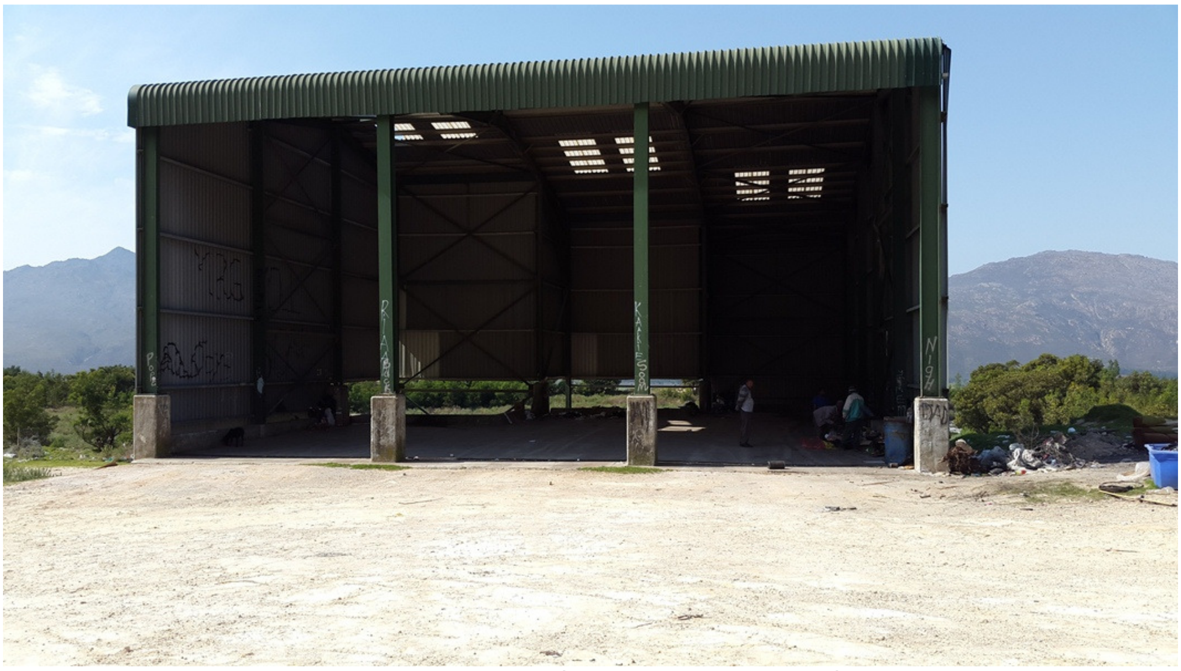


Figure 3-8: Villiersdorp Solid Waste Transfer Station

The Villiersdorp transfer station is externally audited annually. The latest audit was conducted by JPCE in September 2014. The audit found that the site is not compliant with all of its permit conditions. The non-compliances are listed below:

CONDITION	NON-COMPLIANCE /PARTIAL COMPLIANCE	ACTION	TARGET DATE
3.6	The internal drainage system is not operational.	Repair and maintain the internal drainage system to collect and drain the waste juices from the off-loading apron slab.	a.s.a.p.
3.8.1	The internal drainage system is not operational.	Repair and maintain the internal drainage system to collect and drain the waste juices from the off-loading apron slab.	a.s.a.p.
3.9	The internal drainage system is not operational.	Repair and maintain the internal drainage system to collect and drain the waste juices from the off-loading apron slab.	a.s.a.p.
4.2	The site is not entirely fenced.	Repair and maintain the site perimeter fence to prevent unauthorised access.	Next financial year.

Villiersdorp Transfer Station
Summary Table

Type of facility	Waste Transfer Station
Licensed/Permitted?	Yes
License/Permit Number	16/2/7/H600/D70/Z1/P356
Classification	G:S:B+
Location	34°14'0.60"S,19°12'20.30"E
Estimated Remaining Lifetime	Landfill closed, transfer station indefinite
Access Control?	Yes
Operating Hours	Monday 07:45 - 16:45; Friday 07:45 - 15:30; Saturday 10:00 - 16:00
Externally audited?	Yes
Waste Types Received	General waste

Figure 3-8: Botrivier Drop-off

Currently the waste that is collected from the transfer stations and drop-off is transported to the Caledon landfill for disposal. Once the Karwyderskraal landfill is fully operational after the new cell construction, estimated 2015, the waste from the transfer stations and drop-off will be transported and disposed there.

3.6.5 Disposal Facilities used outside the Theewaterskloof Municipality Boundaries

The hazardous waste generated in Theewaterskloof Municipality will be transported to the Vissershok Waste Management Facility (VWMF). It has a H:H operating permit from DWAF. The site is situated some 800m west of the N7 at Vissershok and is operated and audited in terms of its permit conditions.

The general waste disposal facility used outside the Theewaterskloof Municipal borders will be the Karwyderskraal regional landfill, estimated to be from 2015.

3.6.6 Contaminated Land

There are no known contaminated land or unpermitted landfills prior to ECA 1989 in Theewaterskloof Municipality. All contaminated land is discussed under “3.6.2 Closed Landfills”.

3.6.7 Informal Salvaging

Informal salvaging is a concern at some of the waste facilities in Theewaterskloof. It is proposed in the implementation section of this report that a private recycler is permitted to operate at the waste facilities via a public tender process. Also, following the necessary license amendments of the facilities where this is to take place, informal salvaging can be formalised.

3.7 COSTS OF EXISTING WASTE MANAGEMENT SYSTEM

3.7.1 Financial Summary of Waste Management Services of Theewaterskloof Municipality

The tables below show the totals for the Capital Budget and the Operating Budget for the solid waste department of the Theewaterskloof Municipality. Income for the Municipality is derived from service charges related to collection from domestic and business refuse removal as well as sales. The tariffs are also indicated below.

Table 3-8: Solid Waste Tariffs

	REFUSE REMOVAL			
		Tariff (R)	**14% VAT (R)**	**Total (R)**
1	**Domestic Refuse**			
	Refuse normally originating from a domestic residence which is used for residential purposes, including flats, hospitals, schools, hostels, compounds, churches and halls which are situated on private property and can be easily removed from the container without damage to the plastic liner but not including garden			
a)	**Black bags (only where wheelie bins have not been introduced)**			
	Basic Residential collection based on 3 standard refuse bags (1 refuse unit)	106.75	14.95	121.70
b)	**Wheel bin systems**			
	Basic residential collection based on 1 standard container per week (volume)(240 litre)(1.1m3)	106.75	14.95	121.70
2	**Bona fide sports clubs**	106.75	14.95	121.70
3	**Business refuse**			
	Refuse which originates from the use of a property, except a private residence used exclusively for residential purposes, but does not include builder's refuse, bulky refuse, domestic refuse or industrial refuse			
a)	Catering premises (without bags) - Per standard container for thee (3) removals per week	417.98	58.52	476.50
b)	Non-catering premises (without bags) - Per standard container for two (2) removals per week	286.40	40.10	326.50
4	**Bulky refuse**			
	Refuse, except industrial refuse, originating from any premises and which because of the mass, shape, size or quantity thereof cannot be easily collected in a plastic lining, or be removed there from:			
a)	Daily removals 20 removals per month	5 756.60	805.90	6 562.50
b)	Once per week removals	1 151.32	161.18	1 312.50
c)	Twice per week removals	2 302.64	322.36	2 625.00
d)	Three times per week removals	3 453.96	483.54	3 937.50

REFUSE REMOVAL				
		Tariff (R)	14% VAT (R)	Total (R)
5	**Special removals on weekends**			
	Per removal on Saturday and Sunday (NEW)	1 458.51	204.19	1 662.70
6	**Self dumping: Transfer Stations/Dumping Sites**			
6.1	**Residential Consumers up to 1 ton** (On display of municipal account)		Free of charge	
6.2	**Non Residential Consumers**			
a)	Vehicles up to 1 Ton per request & trailer per request	135.79	19.01	154.80
b)	Vehicles up to 3 Ton with half load per request	277.89	38.91	316.80
c)	Vehicles up to 3 Ton per request	563.16	78.84	642.00
d)	Vehicles up to 3-5 Ton per request	832.46	116.54	949.00
e)	Vehicles 5 - 10 Ton per request	1 346.67	188.53	1 535.20
f)	Vehicles > 10 Ton per request	1 689.30	236.50	1 925.80
7	**Other refuse removals (per month)**			
a)	Helderstroom Correctional Services	59 659.91	8 352.39	68 012.30
b)	Dennehof	5 442.54	761.96	6 204.50
8	**Veterinary Services**			
a)	Veterinary Services per month	286.40	40.10	326.50
b)	Disposal of Dead animal carcasses [In addition to 8(a)]	115.00	16.10	131.10
	Non profitable Animal welfare organisation must apply to the relevant town manager to be eligible for this exemption. Late application will result in the organisation being liable up until the date of application			
9	**House Shop Tariff** **This is in addition to tariff 1**	53.42	7.48	60.90
10	**Farms** **Applicants need to apply for the service, in order for the finance department to make a cost calculation**			
	In these tariffs the ton measurements under Self Dumping indicates the Vehicle mass and not the quantity of Refuse			
	In these tariffs a "premises" means a property or a portion thereof which appears separately on the Council's valuation list; with the understanding that where there is more than one unit on a property, each such unit is deemed to be a separate premises.			
	Semi-detached houses, separate residences, business premises, offices, factories, garages, restaurants and shops on the same erf, but occupied by separate persons in separate capacities are regarded as being separate premises.			

Table 3-9: Solid Waste Department Budget

Budgeted Financial Performance (revenue and expenditure by municipal vote)									
Vote Description	2010/11	2011/12	2012/13	Current Year 2013/14			2014/15 Medium Term Revenue & Expenditure Framework		
	Audited Outcome	Audited Outcome	Audited Outcome	Original Budget	Adjusted Budget	Full Year Forecast	Budget Year 2014/15	Budget Year +1 2015/16	Budget Year +2 2016/17
Revenue by Vote									
Vote 9 - Waste Management	18 522 751.40	20 276 750.76	23 189 686.09	24 459 300.00	25 872 000.00	25 872 000.00	30 201 746.00	32 229 777.00	34 485 788.00
Expenditure by Vote to be appropriated									
Vote 9 - Waste Management	19 937 613.91	23 538 278.95	22 245 838.83	20 123 581.00	24 728 045.00	24 728 045.00	25 621 255.00	27 650 516.00	28 932 973.00

Budgeted Capital Expenditure by vote, standard classification and funding									
Vote Description	2010/11	2011/12	2012/13	Current Year 2013/14			2014/15 Medium Term Revenue & Expenditure Framework		
	Audited Outcome	Audited Outcome	Audited Outcome	Original Budget	Adjusted Budget	Full Year Forecast	Budget Year 2014/15	Budget Year +1 2015/16	Budget Year +2 2016/17
Capital expenditure - Vote									
Multi-year expenditure to be appropriated									
Vote 9 - Waste Management	–	807 781.00	347 127.00	–	–	–	–	6 384 032.00	9 101 003.00

Budgeted Financial Performance

Description	2010/11	2011/12	2012/13	Current Year 2013/14			2014/15 Medium Term Revenue & Expenditure Framework		
	Audited Outcome	Audited Outcome	Audited Outcome	Original Budget	Adjusted Budget	Full Year Forecast	Budget Year 2014/15	Budget Year +1 2015/16	Budget Year +2 2016/17
REVENUE ITEMS:									
Service charges - refuse revenue									
Total refuse removal revenue	14 165 285.61	20 276 750.76	23 189 686.09	24 459 300.00	25 872 000.00	25 872 000.00	30 201 746.00	32 229 777.00	34 485 788.00
Total landfill revenue	–	–	–	–	–	–	–	–	–
Less Revenue Foregone	–	4 202 717.72	4 729 821.98	6 514 560.00	6 009 240.00	6 009 240.00	7 406 739.00	7 999 279.00	8 639 221.00
Net Service charges - refuse revenue	**14 165 285.61**	**16 074 033.04**	**18 459 864.11**	**17 944 740.00**	**19 862 760.00**	**19 862 760.00**	**22 795 007.00**	**24 230 498.00**	**25 846 567.00**
EXPENDITURE ITEMS:									
Contracted services									
Dumping fee Karwyderskraal	1 114 927.81	838 683.76	768 401.90	940 000.00	940 000.00	940 000.00	1 215 695.00	1 288 637.00	1 365 955.00
Caledon dumping site	864 058.89	707 693.72	853 725.67	900 000.00	900 000.00	900 000.00	900 000.00	954 000.00	1 011 240.00
Refuse removal Tesselaarsdal & Myddleton	165 423.00	173 454.50	158 269.00	200 000.00	200 000.00	200 000.00	200 000.00	212 000.00	224 720.00

Budgeted Financial Position

Description	2010/11	2011/12	2012/13	Current Year 2013/14			2014/15 Medium Term Revenue & Expenditure Framework		
	Audited Outcome	Audited Outcome	Audited Outcome	Original Budget	Adjusted Budget	Full Year Forecast	Budget Year 2014/15	Budget Year +1 2015/16	Budget Year +2 2016/17
Provisions - non-current									
Refuse landfill site rehabilitation	22 608 530.00	23 898119.00	24 980 081.00	25 093 025.00	26 080 081.00	26 080 081.00	26 080 081.00	26 080 081.00	26 080 081.00

List of external mechanisms

External mechanism	Yrs/ Mths	Period of agreement 1.	Service provided	Expiry date of service delivery agreement or contract	Monetary value of agreement 2.
Name of organisation		**Number**			**R thousand**
Genadendal Jackie's Bazaar	Yrs	3	Provision of Services: Removal of Refuse at Households and Streetbins in Middleton and Tesselaarsdal	30 June 2015	216
EnviroServ Waste Management	Yrs	3	Operation of the Caledon Landfill and transport of Containerised Municipal Solid Waste	30 June 2016	1585
R Sauls Bouers	Mths	10	Cutting of grass and Clean up areas every third week	13 June 2014	50

Detailed capital budget							
Municipal Vote/Capital project	**Program/Project description**	**IDP Goal code 2**	**2014/15 Medium Term Revenue & Expenditure Framework**			**Project information**	
			Budget Year 2014/15	**Budget Year +1 2015/16**	**Budget Year +2 2016/17**	**Ward location**	**New or renewal**
Vote 9 - Waste Management							
	Rehabilitation of Landfill sites		–	2 400 000.00	1 475 000.00	All	Renewal
	Upgrade of Drop-off Facilities		–	1 200 000.00	500 000.00	All	Renewal
	Riviersonderend solid waste transfer station		–	2 784 032.00	7 126 003.00	Riviersonderend	Renewal

3.8 STAFF COMPLIMENT OF EXISTING WASTE MANAGEMENT SYSTEM

The organograms below indicate the staff compliment of the solid waste department.

Waste Management Officer:

Chapter 3 of the Waste Act states that:

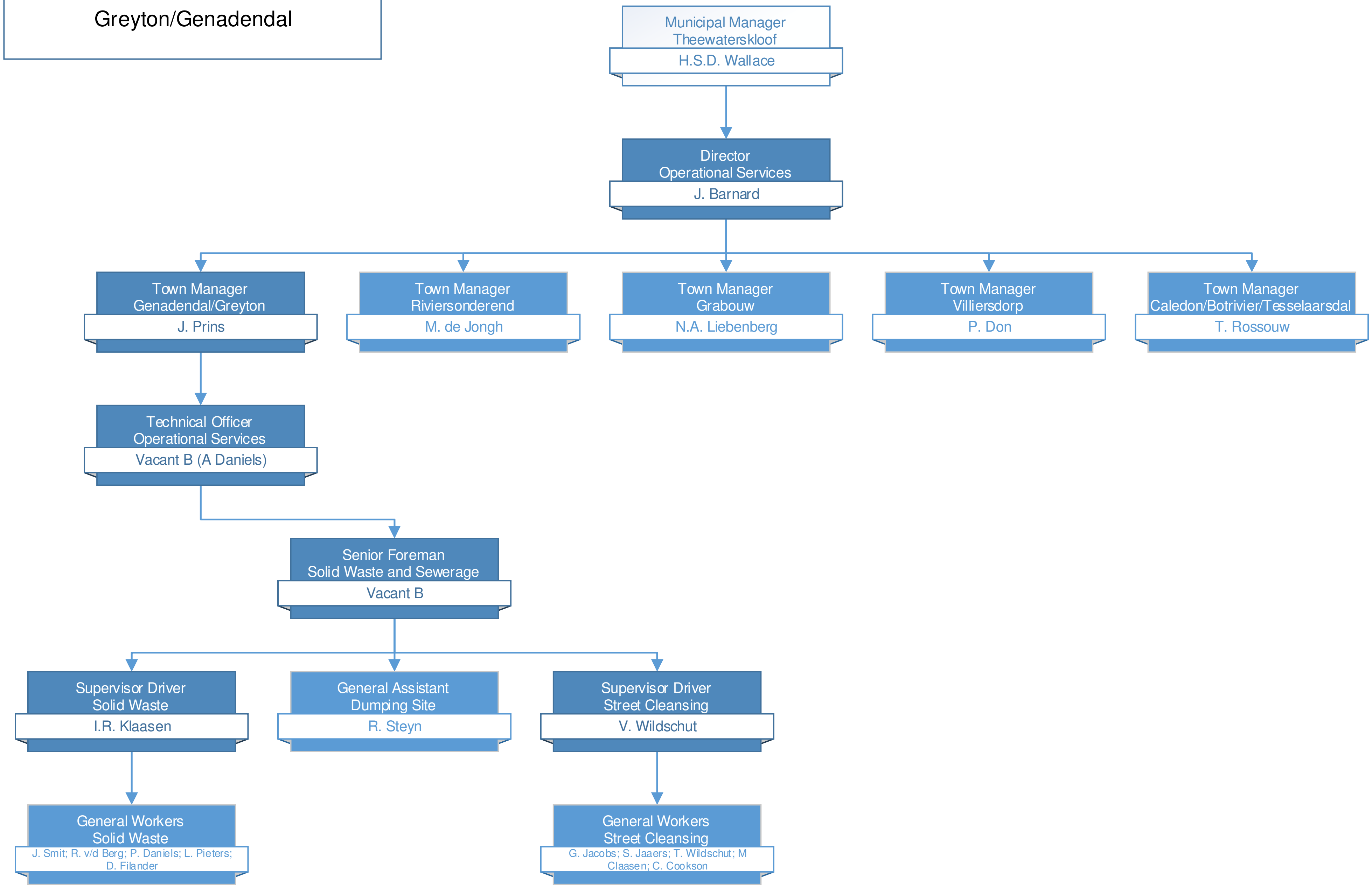
> "10.(3) Each municipality authorised to carry out waste management services by the Municipal Structures Act, 1998 (Act No. 117 of 1998), must designate in writing a waste management officer from its administration to be responsible for co-ordinating matter pertaining to waste management in that municipality.
>
> (4) A power delegated or a duty assigned to a waste management officer by virtue of subsection (3) may be sub-delegated of further assigned by that officer to another official in the service of the same administration, subject to such limitations or conditions as may be determined by the municipality.
>
> (5) Waste management officers must co-ordinate their activities with other waste management activities in the manner set out in the national waste management strategy established in terms of section 6 or determined by the Minister by notice in the Gazette."

The Waste Management Officer for Theewaterskloof Municipality has not been designated at this time. This is a requirement in the implementation of the IWMP.

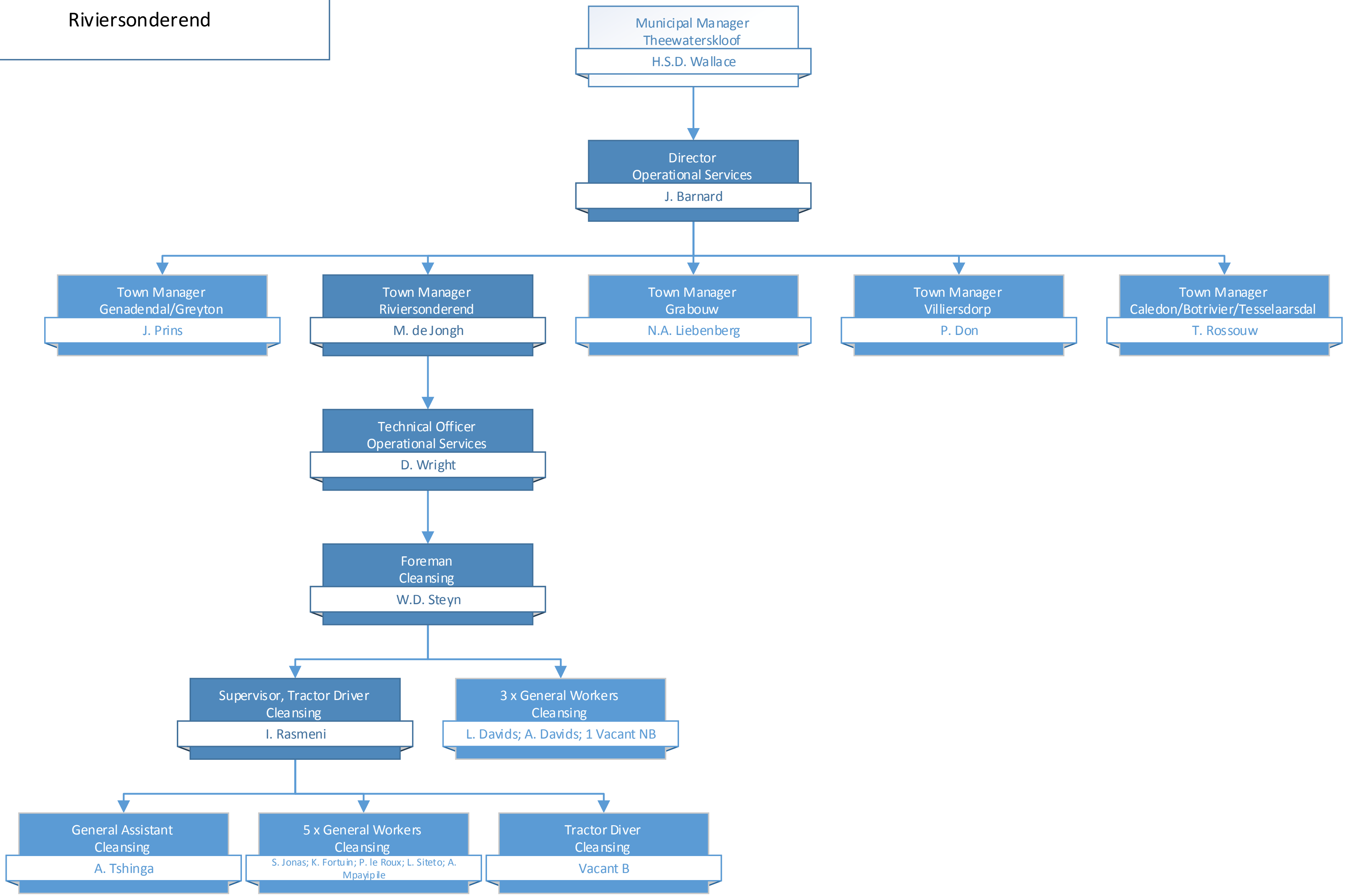
Provision must be made for the continuous training and education of the Theewaterskloof waste management employees. Waste management information sharing/capacity-building events such as the Departmental Waste Forum, Waste Khoro and Waste Con should be attended by waste management employees determined by the Municipality.

The staff compliment is provided in the Organograms below.

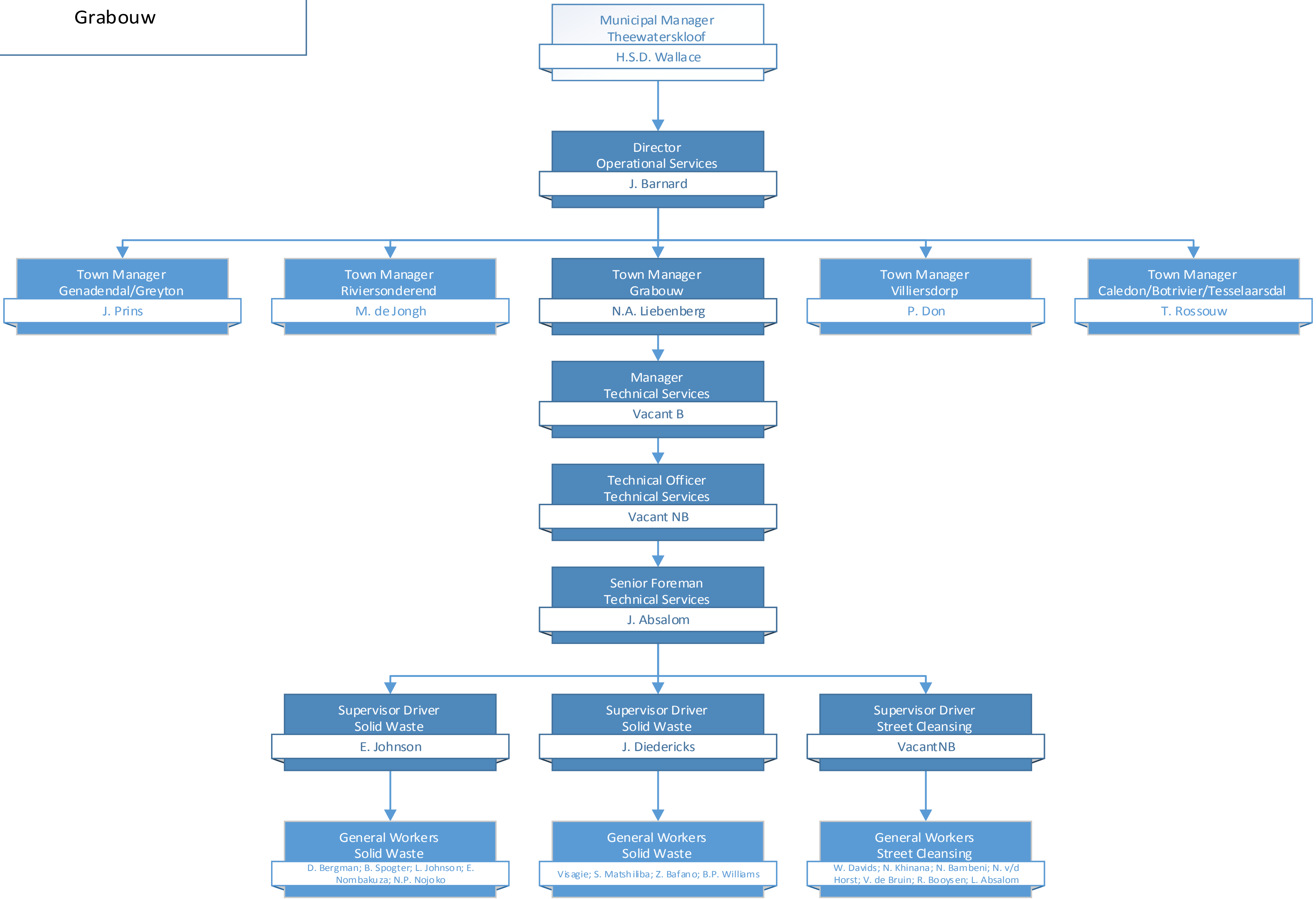
Greyton/Genadendal



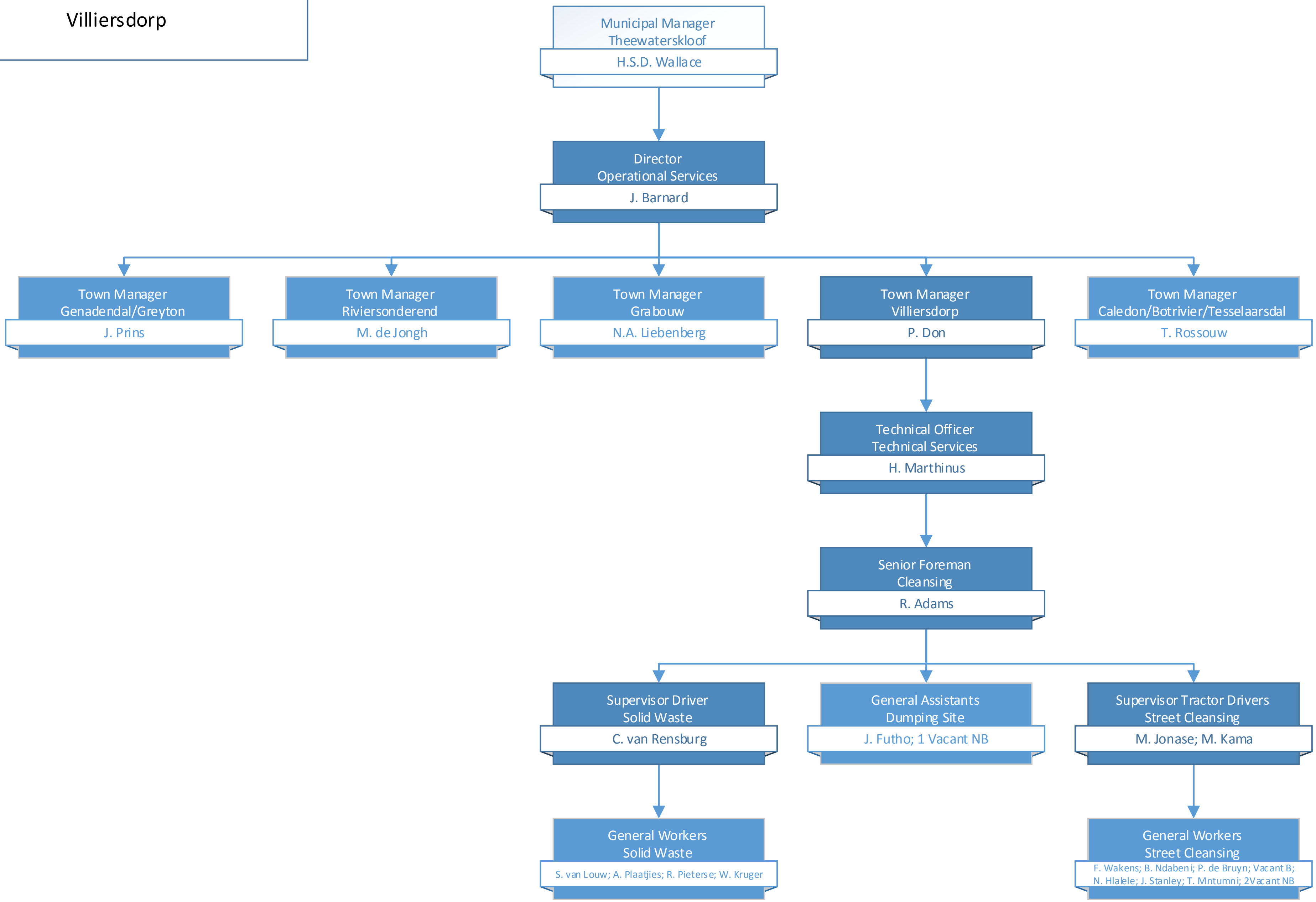
Riviersonderend



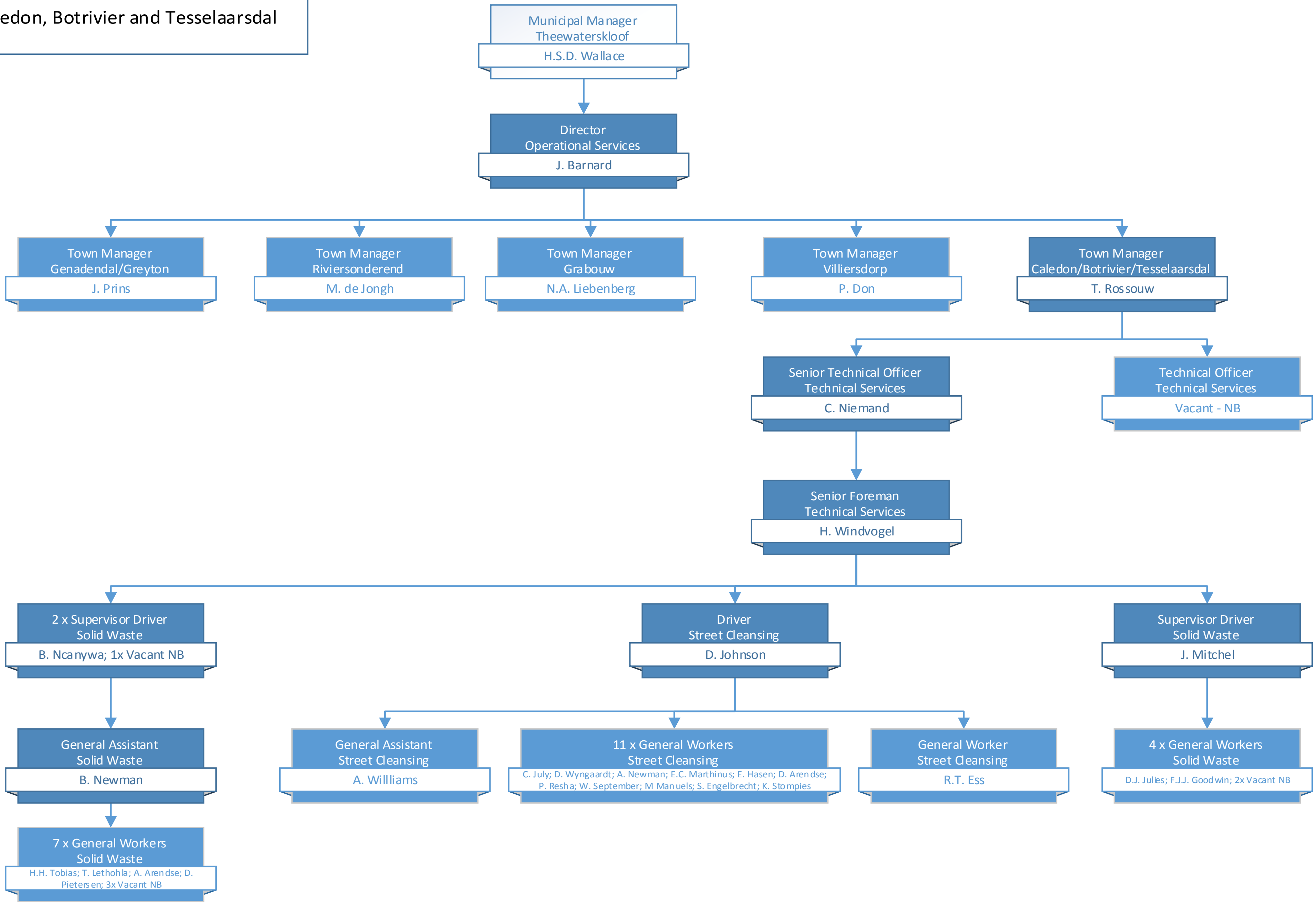
Grabouw


Municipal Manager
Theewaterskloof
H.S.D. Wallace
Director
Operational Services
J. Barnard
Town Manager
Genadendal/Greyton
J. Prins
Town Manager
Riviersonderend
M. de Jongh
Town Manager
Grabouw
N.A. Liebenberg
Town Manager
Villiersdorp
P. Don
Town Manager
Caledon/Botrivier/Tesselaarsdal
T. Rossouw
Manager
Technical Services
Vacant B
Technical Officer
Technical Services
Vacant NB
Senior Foreman
Technical Services
J. Absalom
Supervisor Driver
Solid Waste
E. Johnson
Supervisor Driver
Solid Waste
J. Diedericks
Supervisor Driver
Street Cleansing
VacantNB
General Workers
Solid Waste
D. Bergman; B. Spogter; L. Johnson; E. Nombakuza; N.P. Nojoko
General Workers
Solid Waste
Visagie; S. Matshiliba; Z. Bafano; B.P. Williams
General Workers
Street Cleansing
W. Davids; N. Khinana; N. Bambeni; N. v/d Horst; V. de Bruin; R. Booysen; L. Absalom

Villiersdorp



Caledon, Botrivier and Tesselaarsdal



3.9 CURRENT WASTE MANAGEMENT IDENTIFIED GAPS

The following gaps were identified from the status quo of solid waste management in the Theewaterskloof Municipality:

- Public Awareness and Education.
  - The Municipality needs to implement waste management and education initiatives in order to promote waste minimisation. This can be done in collaboration with private sector initiatives which are already under way.
- Lack of information regarding waste generation types and volumes.
  - A new study regarding the waste stream characterisation must be done, preferably when the use of weighbridges are available. As no weighbridges are installed at the Theewaterskloof landfill sites, the Karwyderskraal landfill is a good option once it is operational.
- Collection Fleet – Age, Condition, Aesthetics, Type.
  - Some vehicles are likely operating beyond their effective lifetimes. These vehicles need to be evaluated to ensure that they are still cost effective and efficient. If not, they need to be replaced. Collection vehicles help in creating the public's perception of waste management and need to be aesthetically pleasing.
- Law enforcement.
  - The levels of illegal dumping need to be reduced by stricter law enforcement on the perpetrators.
  - Non-compliances of the solid waste facilities need to be addressed.
- Closed and unlicensed disposal sites.
  - The closed Villiersdorp landfill requires rehabilitation. The Caledon, Greyton, Genadendal and Riviersonderend landfills will require rehabilitation in the near future.
- Funding, disposal, recycling
  - With the Caledon landfill nearing capacity and the other disposal sites receiving closure licenses, infrastructure must be put in place in order to dispose waste that cannot be recovered.
- Green waste
  - An alternative for generated green waste in Theewaterskloof must be found, as the generated volumes are too low for a composting facility to be financially sustainable.
- Solid Waste Department Employees
  - Vacant positions in the solid waste department must be filled and a waste management officer must be designated as per the Waste Act.

Possible negative impacts of identified gaps on health and the environment

- With lack of public awareness and education, the understanding of a sustainable waste management system will be lacking and public littering will increase. With no realisation of the actual impact of waste on the environment, there would be no reason to be environmentally responsible. The environment will be poisoned by uncontrolled waste which will affect the public at large. An uninformed public will also not participate in waste avoidance and recycling efforts, causing pressure on landfill airspace requirements, hence more landfills need to be constructed to the detriment of the environment.
- With lack of information regarding waste generation types and volumes, no control can be exercised over the generators of these wastes and where it is disposed, possibly illegally.
- If the vehicles in the collection fleet are used past their useful lifetimes, they become a financial liability

3.10 WASTE MANAGEMENT STRATEGIC OBJECTIVES

With the Status Quo of waste management as listed in the previous chapters and the current problems that are experienced by waste management, the way forward is to state the strategic objectives of the Municipality and then to develop action plans or implementation instruments how to achieve the strategic objectives.

Theewaterskloof Municipality is committed to a system of waste management that will see the least possible amount of waste going to modern engineered landfills. This will be achieved through the use of education, law enforcement and material recovery. New and emerging technologies, where applicable and affordable, will also play a part in overall waste management.

The Waste Management Strategic Objectives for Theewaterskloof Municipality on which this Plan is based, commits the municipality to:

- Create an atmosphere in which the environment and natural resources of the region are conserved and protected.
- Develop a communication/information/education strategy to help ensure acceptance of 'ownership' of the strategic objectives among members of the public and industry throughout the municipality and to promote co-operative community action.
- Provide a framework to address the municipality's growing problem of waste management in accordance with best prevailing norms, financial capacity and best environmental practice.
- Provide solutions for the three main objectives:
    - The avoidance of waste generation
    - The reduction of waste volumes
    - The safe disposal of waste

3.10.1 Strategic Objectives

3.10.1.1 General

To ensure that Waste Management in the Theewaterskloof Municipal Area complies with South African and International environmental standards so that it is beneficial to industrial and agricultural growth and the public's right to a clean and healthy environment.

3.10.1.2 Waste Avoidance

To promote the minimisation of the generation of waste.

3.10.1.3 Waste Reduction

To promote the reduction of all waste so that nothing of neither value, nor anything that can decompose, gets disposed.

3.10.1.4 Waste Disposal

To store, dispose or treat all waste that cannot be avoided nor reduced at licensed facilities with regular operational and environmental monitoring and in accordance with regulatory requirements.

3.10.1.5 Definitions

WASTE AVOIDANCE is to avoid material entering the waste stream, e.g. when the generator of the material either re-uses it or gives the material to somebody else as product or raw material. Composting at home is regarded as waste avoidance.

WASTE REDUCTION is to reduce the quantity of waste that has been discarded by its generator, e.g. when recyclable materials are recovered at the sidewalk or at a transfer station, materials recovery facility or landfill. Composting of garden waste at a composting facility is regarded as reduction.

WASTE DISPOSAL is defined as the storage, treatment or disposal of waste at licensed facilities.

3.10.2 Role of Theewaterskloof Municipality

The role of the local authority in waste management is of vital importance. Theewaterskloof Municipality needs to provide a safe, robust, and secure system for the management of wastes generated in its administrative area.

It is essential that this system can respond to changes in socio-economic situation, to changing waste composition and quantities, and to alterations in the public's perception of waste management issues. Theewaterskloof Municipality must adopt, therefore, a combination of options for handling waste, tailored to meet the needs and prevailing circumstances of its particular administrative area. The combinations utilised will undoubtedly vary over time - reflecting the changing needs of local residents and the environment.

The plans formulated by Theewaterskloof Municipality are specific to the area and its resources. They reflect the availability of suitable waste management facilities in the region, as well as local market demand for recovered materials. Special care must be taken to cater for the volatility of markets for recovered materials by ensuring that there are other suitable options to fall back on, if required. It is, therefore, highly desirable to be able to switch between waste management methods - further emphasising the hazards of relying too heavily on a single policy option instead of a combination of policies.

The Integrated Waste Management Plan of Theewaterskloof Municipality is a requirement of the Waste Act and this plan will be carried out through the upcoming years. This plan takes into account the Municipality's legal obligations regarding waste avoidance, recovery, disposal and general management.

4. THEEWATERSKLOOF MUNICIPALITY'S IWMP IMPLEMENTATION ACTIONS, SCHEDULE AND COST ESTIMATES

Theewaterskloof IDP Technical Directorate Priorities (Specifically Solid Waste Management)			
Ward	**Project**	**Priority (0 highest, 5 lowest)**	**Years**
All	Solid waste recycling	1	2014/2015 onwards
2: Genadendal/Greyton	Genadendal Solid Waste Transfer Station	0	
Ward 8 - 13	Replace Refuse Compactor	1	2015/2016

4.1 IWMP GOAL 1: PUBLIC AWARENESS AND EDUCATION

Goal 1: Awareness & Education						
Objectives/Targets	**Actions/Cost Estimates**					
	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019 AND ON**
Educate, strengthen capacity and raise awareness in integrated waste management. The public will be informed and continually made aware of the impacts of waste on the environment. Municipal staff will receive training and attend forums.	Create a position for an education officer in the solid waste department to conduct education programmes and collaborate with the private sector initiatives which are already established.					
	Costs to be determined.					
	Theewaterskloof Municipality Solid Waste employees to attend education seminars and waste forums. Capacity training and education conducted within the Municipality where needed.					
	Costs dependent on number of forums attended as well as costs related to internal training provided by Theewaterskloof Municipality.					

4.2 IMWP GOAL 2: IMPROVE WASTE INFORMATION MANAGEMENT

Goal 2: Improve Waste Information Management						
Objectives/Targets	Actions/Cost Estimates					
	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019 AND ON
Ensure the reporting of all waste management facilities to IPWIS. Waste quantification systems to be in place. Registration of hazardous waste generators (industry & medical) and service providers (e.g. transporters).	Registering of waste generators, transporters and recyclers and reporting to the Municipality.					
	Provision has been made for this in the draft integrated waste management by-laws and will be affective after publication thereof.					
		Conduct the Waste Characterisation Study				
		R 27 000.00 with EPWP workers. Worker training can be done in-house				
		Install a weighbridge at the Caledon proposed transfer station.	Continual recording of weighbridge readings and reporting to the Waste Information System. Quantities to be recorded at the Karwyderskraal regional landfill where weighbridges are already installed and at the proposed Caledon transfer station.			
		Cost included under Goal 3.				

4.3 IMWP GOAL 3: EFFECTIVE SOLID WASTE SERVICE DELIVERY

Goal 3: Effective solid waste service delivery						
Objectives/Targets	**Actions/Cost Estimates**					
	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019 AND ON**
Ensure that waste services are provided in an effective and environmentally responsible manner to all residents of the Theewaterskloof Municipality.	Collection Service Review: The Theewaterskloof Municipality must ensure that all residents receive an affordable waste service at an acceptable level. Current service levels are good and it needs to be ensured that this remains the case. Waste collection planning must be reviewed in order to provide services to new developments. The Town Engineers must liaise with the town planning department to stay up to date with new areas that require or will require service. The complaints registry and service requests must be reviewed by the Waste Management Officer at least weekly to ensure that these are properly addressed.					
	Grabouw Transfer Station Expansion		Construct a solid waste drop-off for Greyton / Genadendal.			
	R200 000.00	R1 800 000.00	R2 431 200.00			
	Appoint Waste Management Officer as per Waste Act requirements.	Construct a transfer station at Caledon and Riviersonderend. Cost estimate includes construction and professional fees.				
		R8 453 500.00 (Caledon); R4 814 200.00 (Riviersonderend)				
	Collection Vehicles Review: The older Municipal collection vehicles currently in the Municipal fleet aged above 7 to 8 years, must be assessed in terms of running cost and effectivity. Where vehicles are operating beyond their effective economic lifetimes or are not the most efficient vehicles for their functions, they must be replaced. It must also be ensured that each vehicle's function is thoroughly assessed in order to replace the old vehicles with the most efficient and cost-effective ones. The Waste Management Officer will be responsible.					
		Replace Refuse Compactor for Ward 8 to 13				
		R1 500 000.00				
	The review will determine the vehicles which require replacement and provision can be made in the capital budget.					
	Vacant positions need to be filled. In order to provide an effective service, key vacant positions in the solid waste department need to be filled.					
	The number of and type of position will determine the additional costs to the Municipality. Competent employees need to be appointed and training provided as necessary.					

4.4 IMWP GOAL 4: PROMOTE AND ENSURE WASTE MINIMISATION

Goal 4: Promote and Ensure Waste Minimisation						
Objectives/Targets	**Actions/Cost Estimates**					
	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019 AND ON**
Maximise waste minimisation in the Theewaterskloof Municipality. The aim is to consistently divert high percentages of waste from landfill.		Promote and implement a source separation system in the Theewaterskloof Municipality. This ties in with Goal 1 and 3 above. Determining the costs is part of the collection service review.				
		Apply for license amendments to allow waste recovery at the Grabouw transfer station and Caledon landfill.				
		R100 000.00				
			Appoint a private recycler via public tender which allows the recycler to conduct recycling activities at the Municipality's waste management facilities. Following the necessary permit amendments this will allow for the recycler to formalise the operations of the informal salvagers on the sites.			
			No costs to the Municipality, except if a consultant is used to compile the tender document, estimated at R20 000.00. The appointed recycler is not paid by the Municipality, but the appointed recycler is given the right to conduct his recycling activities at the chosen facilities via the tender.			

4.5 IMWP GOAL 5: IMPROVE REGULATORY COMPLIANCE

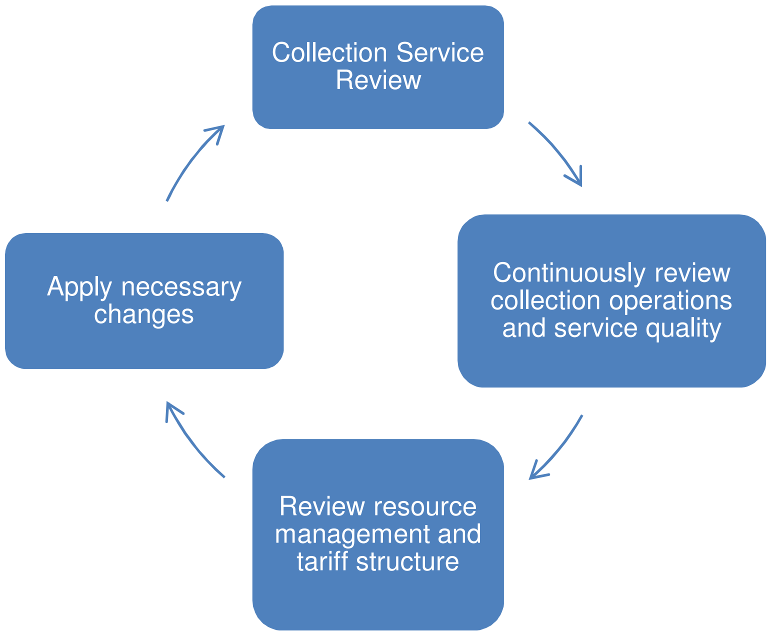
Goal 5: Improve Regulatory Compliance						
Objectives/Targets	**Actions/Cost Estimates**					
	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019 AND ON**
Ensure the licensing of all waste management facilities that require licensing. Rehabilitate all closed landfills in Theewaterskloof. Ensure auditing of waste management facilities and compliance with license conditions.	Approval of draft integrated waste management by-laws by Council	Publish new by-laws and inform residents of the new by-laws	Enforce by-laws and review as is necessary alongside new national and provincial legislation.			
	The D:EA are assisting Municipalities to license unlicensed facilities. Aecom and SRK Consulting have been appointed to acquire licences. Applications for Greyton, Genadendal and Riviersonderend are under way.		Acquire closure license for the Caledon landfill			
	Costs by D:EA		R285 000.00. EAP to be appointed to conduct application			
					Rehabilitate the Caledon, Greyton, Genadendal, Riviersonderend and Villersdorp landfills	
	*Please note that the rehabilitation cost estimates indicated below include professional fees and construction monitoring. The estimate for each site was determined for the current financial year and escalated by 6% per annum to estimate future costs. These costs must be redetermined annually.					
					Caledon: R13 642 964; Greyton: R6 266 653; Genadendal: R5 459 954; Riviersonderend: R3 093 267; Villiersdorp: R6 284 246.	
	Conduct annual internal and external audits for waste management facilities. External audit cost estimates indicated below. Costs to fix non-compliant items will be determined by the audit findings.					
	R46 400.00	R49 184.00	R52 135.04	R55 263.14	R58 578.93	

4.6 IMWP GOAL 6: ENSURE SAFE AND INTEGRATED MANAGEMENT OF HAZARDOUS WASTE

Goal 6: Ensure safe and integrated management of hazardous waste						
Objectives/Targets	**Actions/Cost Estimates**					
	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019 AND ON**
Provide education and management options for hazardous wastes. Ensure legal compliance by hazardous waste generators and transporters. Ensure the monitoring of the incoming waste stream at disposal facilities.	The public must be informed about household hazardous waste and the avoidance, reduction and disposal options available to them regarding these wastes. This forms part of Goal 1 of this plan.					
	As part of Goal 2 of this plan, the registration and reporting of hazardous waste generators at the Municipality will allow the Municipality as the service authority to ensure that the waste is stored, transported, treated or disposed as is legally required.					
	Monitoring of waste: It must be ensured that waste management employees are familiar with the latest legislation regarding hazardous waste, the identification thereof and the disposal options that are legal. Employees at waste management facilities must be able to identify the received waste loads and prohibit the disposal or offloading where required. The incoming waste loads at disposal and waste management facilities must be monitored.					

4.7 IMWP GOAL 7: ENSURE SOUND BUDGETING FOR INTEGRATED WASTE MANAGEMENT

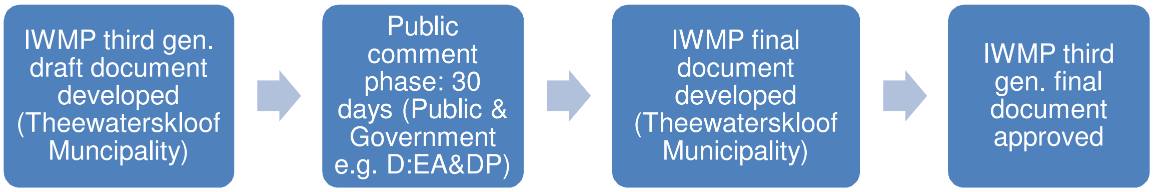
Goal 7: Ensure sound budgeting for integrated waste management						
Objectives/Targets	**Actions/Cost Estimates**					
	2014/2015	**2015/2016**	**2016/2017**	**2017/2018**	**2018/2019**	**2019 AND ON**
Ensure that upcoming implementation actions are in the budget. Explore sources of funding.	The Municipality will ensure that there is sufficient provision in the budget for upcoming projects and action items. This can be done with the annual IWMP implementation programme review and project evaluation.					
	The Municipality will explore other sources of funding.					
	The Municipality will as part of Goal 3 ensure that the service delivered is cost efficient.					


Collection Service Review
Continuously review collection operations and service quality
Review resource management and tariff structure
Apply necessary changes

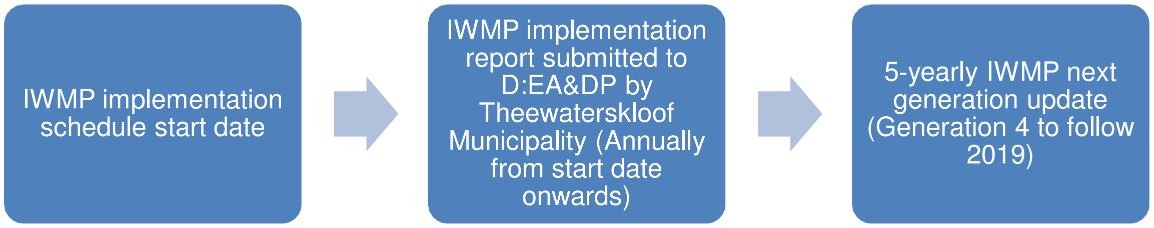
5. IWMP MONITORING AND REVIEW

For the IWMP to be an effective and relevant tool and guide for integrated waste management in the Theewaterskloof Municipality, it will need to be monitored and reviewed. Monitoring relates to the goals and targets set out in the IWMP and whether they are being achieved or pursued. Reviewing relates to the document and the projects themselves which will require regular updates to stay up-to-date, specifically the implementation items of Section 4. The proposed implementation schedule as well as allocated budget may change at any time and these changes, if any, need to be reflected in the reviewed IWMP to avoid confusion.

The following diagram illustrates the initial review cycle when a new IWMP is developed:


IWMP third gen. draft document developed (Theewaterskloof Muncipality)
Public comment phase: 30 days (Public & Government e.g. D:EA&DP)
IWMP final document developed (Theewaterskloof Municipality)
IWMP third gen. final document approved

The date on which the final IWMP third generation document is approved, must be recorded and will serve as the base date on which further monitoring and review dates are based. This is also the start date of the approved implementation schedule. The following diagram illustrates the review steps that must be followed after the final IWMP is published.


IWMP implementation schedule start date
IWMP implementation report submitted to D:EA&DP by Theewaterskloof Municipality (Annually from start date onwards)
5-yearly IWMP next generation update (Generation 4 to follow 2019)

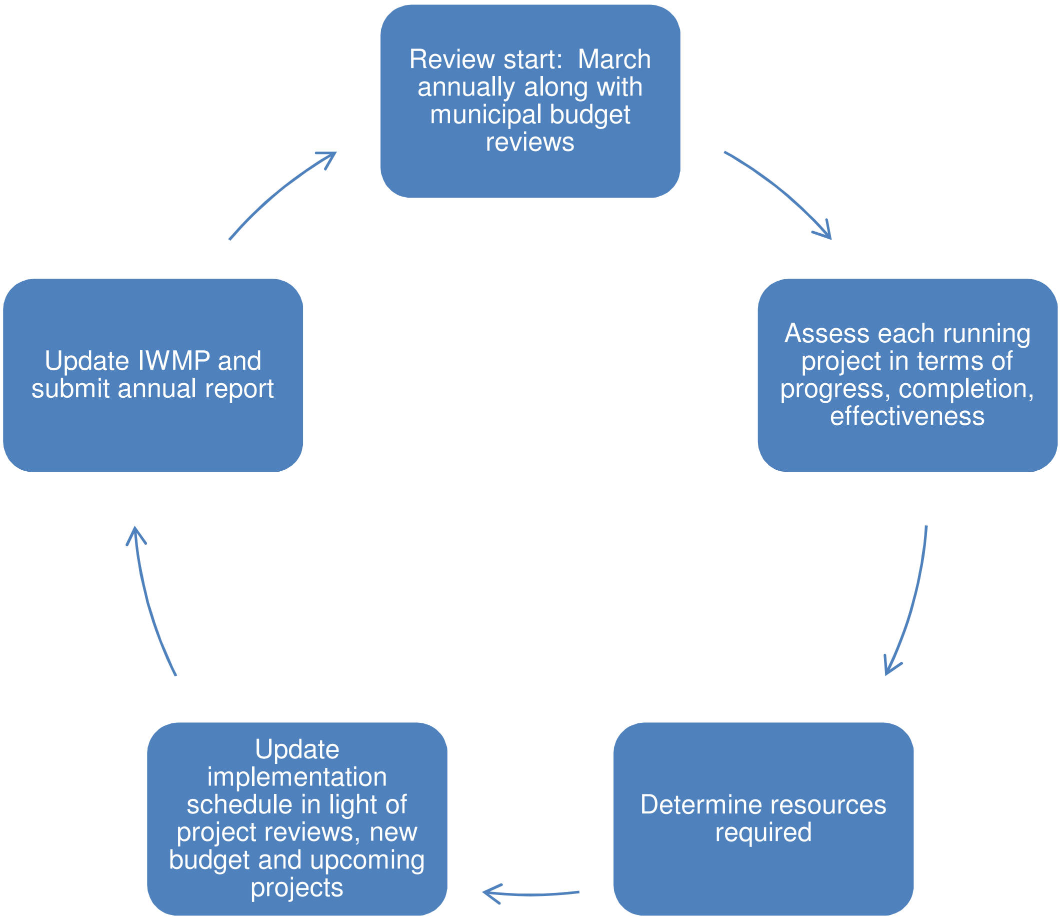
The annual implementation reports will be submitted by the Theewaterskloof Municipality and will be compiled by the Waste Management Officer, or to whom the task is delegated by him. The annual report must contain the approved implementation items and dates of the IWMP and the progress thereof of the past year. Based on the progress and possible new budget allocations, the implementation schedule of the IWMP must be updated and included in the annual report. This new implementation schedule must provide for 3 upcoming years from the report date.

The progress of each task on the implementation schedule, if under way according to the schedule for that year, must be summarised and the estimated completion date must be updated. The reasons for the lack of progress or practical difficulties must be stated along with a summarised action plan to adhere to the schedule as close as possible.

The report must further discuss the effectiveness of completed projects. For example, when a new weighbridge has been commissioned, the collected data must be reported on and added to the IPWIS. Also the participation rates of source separation can be monitored along with the public awareness and education campaign. See **Annexure 3** for an example of a project review form which can be used to track the success and effectiveness of the waste management projects and added to the annual report.

Wherever issues are reported or identified in the projects, these issues must also be evaluated in terms of the relevant legislation and by-laws. It must be stated if there is relevant legislation applicable to the issue and if so, was it the lack of enforcement, for example, that caused the issue. If no relevant legislation exists, it must be noted to adapt the by-laws accordingly in future revisions.

Below is the proposed review cycle of the IWMP and its projects:


Review start: March annually along with municipal budget reviews
Assess each running project in terms of progress, completion, effectiveness
Determine resources required
Update implementation schedule in light of project reviews, new budget and upcoming projects
Update IWMP and submit annual report

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The Project Team, with the assistance of Municipal Officials and private entities, has undertaken an analysis of the current municipal solid waste management activities within Theewaterskloof Municipality.

The analysis has shown that the Theewaterskloof Municipality has through the years committed themselves to the delivery of a collection and disposal service for all its residents. In recent years the more sustainable approach with regard to waste minimisation and reduction, especially in the private sector, has been adopted and is to be expanded in the upcoming years.

The chapters of this Integrated Waste Management Plan describe the way in which the municipality is currently conducting solid waste management and how to strategically move towards a sustainable waste management system whereby the focus will shift to the avoidance and reduction of waste rather than to the disposal thereof. It also lists the strategies of the municipality in terms of waste avoidance, waste reduction and waste disposal.

During the process of the implementation of the municipality's IWMP, and arising from the public consultation process that is forthcoming, further input and/or corrections to the report may come to light that will then be added as a revision to the report.

The analysis of the current waste management system has shown the following:

- all formal and informal residential erven are receiving weekly waste collection services
- waste collection services are not available to farms unless an application for service is approved; the farmers offload their waste at the drop-offs, landfills and transfer stations
- collected municipal waste is disposed at the Greyton, Genadendal and Riviersonderend landfills or off-loaded at the Villiersdorp transfer station, Grabouw transfer station or Botrivier drop-off from where is it transported to the Caledon landfill for disposal. The Karwyderskraal regional landfill will also be used when operation starts after construction of the new cell in 2015.
- most healthcare risk wastes are managed by private contractors and one hospital makes use of incinerators
- recycling is done by private recyclers in collaboration with swop shops.
- Industry for example Kromco and Elgin fruit juices are practicing waste avoidance and save large amounts of disposal airspace and energy.

With the current waste management system focussing on getting the waste into the waste stream and disposing of it in an acceptable manner, and with the future integrated waste management system focussing on waste avoidance and waste reduction, the municipality requires a set of strategic objectives on how to transform from the current management system to the future management system.

The strategic objectives for integrated waste management in Theewaterskloof Municipality can be summarised as follows:

- To ensure that Waste Management in the Theewaterskloof Municipal Area complies with South African and International environmental standards so that it is beneficial to industrial and agricultural growth and the public's right to a clean and healthy environment.
- To minimise the entrance of material of value into the waste stream.
- To reduce all waste so that nothing of value nor anything that can decompose, gets disposed.
- To store, dispose or treat all waste that cannot be avoided nor reduced at licensed facilities with regular operational and environmental monitoring and in accordance with regulatory requirements.

For these strategic objectives to be met, a series of implementation instruments (action plans) will need to be implemented. These implementation instruments as well as time framework within which it should be addressed are described in this report but need to be fully detailed at a later stage. The instruments are the following:

- Public Awareness and Education
- Improving Waste Information Management
- Effective Solid Waste Service Delivery
- Promoting and Ensuring Waste Minimisation
- Improving Regulatory Compliance
- Integrated Management of Hazardous Waste
- Ensuring Sound Budgeting for Integrated Waste Management

The above instruments, through implementation via their action plans, will ensure that waste management in Theewaterskloof Municipality focuses on avoidance and reduction rather than collection and disposal, but simultaneously maintaining the practical balance between the various waste management functions.

Since the highest priority for transforming the current management system is undoubtedly depending on public acceptance and ownership, the Public Awareness and Education instrument will receive preference in the implementing framework.

6.2 RECOMMENDATIONS

A comprehensive analysis and assessment of solid waste management in the Theewaterskloof Municipal area has been done and key strategies have been determined to aim the municipality towards sustainable and integrated waste management.

It is therefore recommended that the next stage of the process of implementing the Integrated Waste Management Plan be proceeded with, that entails the consultation process with the public and the development of detail action plans and key performance indicators for future monitoring of the municipality's successes in waste management service delivery.

Public Awareness

The first step in educating the public about waste is to make them aware of any new waste management procedures and facilities available to them.

Another reason to focus on educating the public will cause a greater awareness of waste minimisation. This will reduce waste generation rates which will in turn reduce transport volumes and costs. It is important to also provide feedback to the public of the success of their efforts, for example publishing month to month volumes of waste diverted from being landfilled.

To reduce the contamination of recyclables, a source separation strategy can be implemented.

Waste Collection and Transport

The current collection service and its composition should be reviewed. Part of the Theewaterskloof collection fleet is due for replacement and it must be ensured that the appropriate vehicles are acquired. This can be done by reviewing the function and route of each vehicle. It has been shown that where an appropriate vehicle is used, it can replace several inappropriate vehicles used for the same function.

This possible reduction in fleet size can ultimately reduce labour and transport costs by vast amounts per annum as well as improve efficiency.

Waste reduction

Allowing a private recycler via appointment through a public tender process to conduct recycling at the Theewaterskloof waste management facilities will open opportunities for job creation, formalising informal salvaging and reducing waste destined for disposal at landfill sites. Public awareness and education will contribute to the public's efforts and participation. Recyclers require support in order to sustain their operations. The Municipality should investigate the possibility of a centralised composting facility if other nearby Municipalities are able to transport their green waste to Theewaterskloof. The other option would be to investigate the feasibility of transporting Theewaterskloof's green waste to an already established composting plant.

Waste Disposal

It must be ensured that all waste management facilities are regularly audited as stipulated in each waste License. Regular audits will ensure that these facilities are operated correctly and efficiently. Ensuring the correct operations will maximise the results of efforts of waste reduction and recovery and therefore the benefits thereof.

The following items must be included in the Theewaterskloof Municipality IDP:

- The rehabilitation of the Caledon, Greyton, Genadendal, Riviersonderend and Villiersdorp landfills
- The construction of transfer stations at Caledon, Riviersonderend and Genadendal
- The Greyton transfer station expansion

ANNEXURE 1
IWMP CHECKLIST

Western Cape Government
Environmental Affairs and Development Planning

INTERGRATED WASTE MANAGEMENT PLANNING

CHECKLIST FOR THE ....LOCAL MUNICIPALITY

FEBRUARY

2014

The Afrikaans or Xhosa version of this document is available on request.

SECTION 1: GENERIC INFORMATION			
Category of the municipality	A	B	C
Date of Submission			
Name of the municipality			
Section or Department within the municipality responsible for drafting the IWMP			
Contact details of “Responsible Person” in the Municipal Department		Contact details of Alternate contact person from Municipality	
Name:		Name:	
Tel:		Tel:	
Fax:		Fax:	
Cell:		Cell:	
Email:		Email:	

Integrated Waste Management Plan Review Form (IWMP) / Checklist

Please answer the following questions by placing a (**X**) in the appropriate block. Only submit your IWMP for approval once you have answered YES to all the questions below.

CHECKLIST QUESTIONS	YES	NO
SECTION 1 INTRODUCTION AND GENERAL DESCRIPTION		
1.1) Does the Intro and general description includes overall aim, strategic goals and scope, of the IWMP?		
1.2) Does the IWMP indicate the geographical coverage of the plan?		
1.3) Does the IWMP indicate the Geo-physical and Geo-hydrological conditions in the municipality?		
SECTION 2 STRATEGIC LINKAGES		
2.1) Does the IWMP show linkages with the WC IWMP?		
2.2) Does the IWMP show linkages with the SDF?		
2.3) Does the IWMP show linkages with the IDP?		
SECTION 3 PUBLIC PARTICIPATION		
3.1) Is there a detailed public participation program included in the IWMP? (i.e. date, location and amount, number of PP session's, type of PP(newspapers, meetings), (participants)		
3.2) Does the IWMP provide proof of PP i.e. attendance registers, comments received and response given?		
SECTION 4 IWMP STATUS QUO OR SITUATION ANALYSIS		
4.1 LEGISLATION		
4.1.1) Does the IWMP identify all existing legislation and policies, which is applicable to integrated waste management including the local municipal by-laws?		

4.1.2) Does the IWMP indicate which existing local government by-laws that influence waste management practices are currently being reviewed or in the process of being reviewed?		
4.1.3) Does the Status Quo identify any international agreements		
4.2 DEMOGRAPHIC PROFILE		
4.2.1) Does the Status Quo indicate the existing demographic profile of the municipality w.r.t total population of the area,		
4.2.2) Does the Status Quo indicate the existing demographic profile of the municipality w.r.t projected population and growth rate of the area,		
4.2.3) Does the Status Quo indicate the existing demographic profile of the municipality w.r.t population distribution		
4.2.4) Does the Status Quo indicate the existing demographic profile of the municipality w.r.t socio-economic categories including income levels		
4.2.5) Does the Status Quo indicate the existing demographic profile of the municipality w.r.t development profiles		
4.3 WASTE MANAGEMENT COST AND FINANCING		
4.3.1) Does the IWMP include a detailed breakdown of current operational and capital budget?		
4.3.2) Does the IWMP include a detailed breakdown of current operational and capital expenditure?		

4.3.3) Does the IWMP indicate the current breakdown of income (e.g. tariffs, fines for waste management)		
4.4 SERVICES AND SERVICE DELIVERY		
4.4.1) Does the IWMP indicate the level of free basic services		
4.4.2) Does the IWMP indicate the level of services to Formal residential houses		
4.4.3) Does the IWMP indicate the level of services to informal settlements.		
4.4.4) Does the IWMP indicate the level of services to farms		
4.4.5) Does the IWMP indicate unserviced areas		
4.5 COMPLIANCE AND ENFORCEMENT		
4.5.1) Does the Status Quo identify licensed and unlicensed waste management facilities and has provision been made for the licensing, closure and rehabilitation of these facilities in the IWMP.		
4.5.2) Does the IWMP indicate if landfill sites, recycling, drop-off and buy-back centers are in compliance with license conditions?		

4.5.3) Does the Status Quo provide a summary of waste related complaints (i.e. number and type)		
4.5.4) Does the Status Quo indicate the available annual air space and remaining life expectancy of the waste management facilities.		
4.5.5) Does the Status Quo identify contaminated land (unpermitted landfills prior to ECA) and indicate remediation measures to reduce the risk of harm to health or the environment.		
4.5.6) Does the IWMP address how informal salvaging, if any, on existing landfill facilities are going to be formalized, controlled or eliminated and does the permit/license or environmental authorization make provision for it, or do they indicate if the existing authorizations are to be amended.		
4.6 WASTE CHARACTERISATION		
4.6.1) Does the IWMP include waste generation quantities and types for general and hazardous waste from households		
4.6.2) Does the IWMP include waste generation quantities and types for general and hazardous waste from industry		
4.6.3) Does the IWMP include waste generation quantities and types for general and hazardous waste from business		
4.6.4) Does the IWMP include waste generation quantities and types for general and hazardous waste from Farms		
4.6.5) Does the IWMP include waste generation quantities and types for general and hazardous waste from Other institutions e.g. health care facilities		

4.6.6) Does the IWMP include projected waste generation quantities?		
4.7. **WASTE MINIMISATION**		
4.7.1) Does the Status Quo indicate any waste minimisation (reuse, recycling, recovery, treatment) initiatives as mandated in the NEM: WA within your municipal area including private sector initiatives?		
4.7.2) Does the IWMP include waste minimisation quantities and types for general and hazardous waste?		
4.8. **ORGANISATIONAL STRUCTURE AND STAFF CAPACITY**		
4.8.1) In accordance with Chapter 3 of NEMWA has a waste management officer been designated in writing to be responsible for coordinating matters pertaining to waste management in the municipality?		
4.8.2) Does the IWMP indicate the entire waste staff (management, supervisor and labourers) complement including any staff vacancies and plans to fill vacant posts.		
4.9. **WASTE AWARENESS AND EDUCATION**		
4.9.1) Does the IWMP provide information(campaigns) on waste awareness and education		
4.10 WASTE INFORMATION MANAGEMENT		

4.10.1) Does the IWMP indicate the Status of registration and reporting of waste management facilities on IPWIS.		
4.10.2) Does the IWMP indicate the use of a waste quantification system?		
5. GAP AND NEED ANALYSIS		
5.1) Does the IWMP indicate a gap analysis (analysis and identification of issues, problems or shortcomings or challenges within the municipality w.r.t waste management.		
6. OBJECTIVES AND TARGETS		
6.1) Does the IWMP set short, medium and long-term objectives and targets? If yes, are these objectives specific/measurable/achievable/realistic/time-based (SMART)?		
7. IWMP IMPLEMENTATION		
7.1) Is there a detailed implementation plan identifying activities together with both human and financial resources and timeframes.		
7.2) Does the Implementation plan address how the IWMP will be integrated with the Integrated Development Plan (IDP)?		
8. MONITORING AND REVIEW		
8.1) Does the IWMP introduce mechanisms to monitor the effectiveness of the implementation of the IWMP and to take corrective actions if the targets are not met?		

Score:

Percentage:

ANNEXURE 2
SOLID WASTE BY-LAWS

Penalties

15. Any person who contravenes or fails to comply with a provision of this by-law, a notice issued in terms of this by-law or a condition imposed under this by-law, irrespective of whether such contravention or failure has been declared as an offence elsewhere in this by-law, shall be guilty of an offence and liable upon conviction to—

(1) a fine or imprisonment, or either such fine or such imprisonment or both such fine and such imprisonment;

(2) in the case of a continuing offence, an additional fine or an additional period of imprisonment or either such additional fine or such additional imprisonment or both such additional fine and imprisonment for each day on which such offence is continued, and

(3) a further amount equal to any costs and expenses found by the court to have been incurred by the municipality as result of such contravention. 20263

Strafbepalings

15. Enige persoon wat 'n bepaling of voorskrif van hierdie verordeninge oortree of versuim om daaraan te voldoen, of 'n kennisgewing of voorwaarde in terme van hierdie verordening oortree of versuim om daaraan te voldoen, ongeag of sodanige oortreding of versuim elders in hierdie verordeninge tot 'n misdryf verklaar is, al dan nie, is skuldig aan 'n misdryf en by skuldigbevinding strafbaar met—

(1) 'n boete of gevangenisstraf, óf sodanige boete of sodanige gevangenisstraf óf beide sodanige boete en sodanige gevangenisstraf;

(2) in die geval van 'n voortdurende misdryf, met 'n addisionele boete of 'n addisionele tydperk van gevangenisstraf, of óf sodanige addisionele boete of sodanige addisionele gevangenisstraf, óf beide sodanige addisionele boete en gevangenisstraf vir elke dag wat sodanige misdryf voortduur; en

(3) 'n verdere bedrag gelyk aan enige koste en uitgawes wat na bevinding van die hof deur die munisipaliteit aangegaan is as gevolg van sodanige oortreding of versuim. 20263

THEEWATERSKLOOF MUNICIPALITY

BY-LAW RELATING TO REFUSE REMOVAL

Purpose of By-law

- To promote the achievement of a safe and healthy environment for the benefit of the residents in the area of jurisdiction of the municipality;
- To provide for procedures, methods and practices to regulate the dumping of refuse and the removal thereof.

Definitions

1. In this by-law, words used in the masculine gender include the feminine, the singular includes the plural and vice versa, the Afrikaans text prevails in the event of an inconsistency between the different texts and unless the context otherwise indicates:—

"charges" means the tariff for the removal of refuse, whether one, two or three removals per week;

"dumping site" means an area where dumping is allowed as determined and designated by the municipality;

"municipality" means the Municipality of Theewaterskloof established in terms of section 12 of the Municipal Structures Act, 117 of 1998, Provincial Notice 493 dated 22 September 2000 and includes any political structure, political office-bearer, councillor, duly authorised agent thereof or any employee thereof acting in connection with this by-law by virtue of a power vested in the municipality and delegated or sub-delegated to such political structure, political office-bearer, councillor, agent or employee;

"night soil" means human excrement not disposed of in an approved sanitary convenience;

"owner" also means lessee, occupier, resident or any person who obtains a benefit from the premises or is entitled thereto and also includes any insolvent estate, executor, administrator, trustee, liquidator judicial manager;

"permit" also means to allow intentionally, negligently or any other manner whatsoever;

"premises" means any land, whether vacant, occupied or with buildings thereon;

"refuse" includes—

"business refuse" which means any matter or substance arising out

THEEWATERSKLOOF MUNISIPALITEIT

VERORDENING INSAKE VULLISVERWYDERING

Doel van Verordening

- Om die verwesenliking van 'n gesonde en veilige omgewing tot voordeel van die inwoners binne die regsgebied van die munisipaliteit te bevorder;
- Om voorsiening te maak vir prosedures, metodes en praktyke om die storting van vullis en die verwydering van vullis te reguleer.

Woordbepaling

1. In hierdie verordening sluit woorde wat die manlike geslag aandui, ook die vroulike geslag in, sluit die enkelvoud die meervoud in en omgekeerd, geniet die Afrikaanse teks voorrang in die geval van 'n teenstrydigheid tussen die verskillende tekste, en tensy dit uit die samehang anders blyk, beteken:—

"diensterekening" die amptelike rekening, wat die munisipaliteit maandeliks aan die eienaar van 'n perseel lewer;

"eienaar" ook huurder, okkupeerder, bewoner of enige persoon wat voordeel uit die perseel verkry of daarop geregtig is en dit omvat ook enige insolvente boedel, eksekuteur, administrateur, trustee, likwidateur of geregtelike bestuurder;

"gelde" die tarief vir die verwydering van vullis hetsy dit een, twee of drie verwyderings per week is;

"munisipaliteit" die munisipaliteit van Theewaterskloof gestig in terme van artikel 12 van die Munisipale Strukturewet, 117 van 1998, Provinsiale Kennisgewing 493 gedateer 22 September 2000 en sluit in enige politieke struktuur, politieke ampsbekleder, raadslid, behoorlik gevolmagtigde agent daarvan of enige werknemer daarvan handelende ingevolge hierdie verordening uit hoofde van 'n bevoegdheid van die munisipaliteit wat gedelegeer of gesubdelegeer is aan gemelde politieke struktuur, politieke ampsbekleder, raadslid, agent of werknemer;

"perseel" enige grond, hetsy onbebou, geokkupeer of met geboue daarop;

"stortingsterrein" 'n gebied deur die munisipaliteit bepaal en aangewys waar vullisstortings mag plaasvind;

"toelaat" ook op opsetlike, nalatige of welke wyse ook al toe te laat;

"verwyderingsdag" die dag deur die munisipaliteit munisipaliteit bepaal vir die verwydering van vullis en kan een, twee of drie verwyderings, afhangend van die geval, per week wees;

of the use of business premises but does not include waste, hazardous waste, material, domestic refuse or garden refuse;

"domestic refuse" which means any fruit or vegetable peels, fruit or vegetable waste, general domestic waste as well as garden refuse which is of such size that it may be deposited in a refuse bin or any other matter which in the opinion of the municipality constitutes refuse;

"garden refuse" which means refuse originating from a gardening activity such as grass cutting, leaves, plants flowers or similar refuse of such size that it can be placed in a refuse bin;

"hazardous waste" which means any waste, matter or substance which may be hazardous or harmful to the environment and residents or which may pollute the environment including medical waste, asbestos, motor oils or lubricants, or any other waste, matter or substance which in the opinion of the municipality constitutes hazardous waste;

"materials" which means any stone, rock, sand, building materials or building rubble or any other type of composite or artificial materials such as plastic pipes and similar materials as well as materials which are utilised in the erection of buildings or structures or any other materials which in the opinion of the municipality constitute materials;

"waste" which means any matter or substance which cannot be classified as hazardous waste, refuse or materials such as parts of cars, spare parts, motor oils or lubricants or oils and similar substances, materials, liquids, etc;

"refuse bin" means a mobile container with a capacity of 240 litres, or alternatively plastic bags, which the municipality makes available to each premises or as required by the municipality;

"removal day" means the day fixed by the municipality for the removal of refuse and depending on the case may be one, two or three removals, per week;

"residential premises" means premises which are zoned for residential purposes in terms of the zoning scheme;

"services account" means the official account rendered by the municipality to the owner of premises.

Compulsory use of service

2. (1) No one, except the municipality or a person authorised by the municipality, may remove any refuse from any premises or dispose thereof.

(2) Each owner, excluding the owners of farms and smallholdings, must make use of the service provided by the municipality for the removal or disposal of refuse, in respect of refuse originating from such premises.

(3) The tariff as fixed by the municipality is payable to the municipality by the owner, irrespective whether the service is being used, or not.

Refuse bins

3. The municipality provides one refuse bin, supplied with a serial number, or plastic bags per residential premises after the owner of the premises has concluded a written agreement with the municipality, but may in cases—

(a) where the municipality is of the opinion that more than one refuse bin is needed, or

(b) where the owner applies in writing for more than one refuse bin,

supply more than one refuse bin per residential premises provided that the costs of such additional refuse removal service be paid by the owner and any additional removal costs in respect of the additional container(s) is for the account of the owner.

"vullis" ook—

"afval" enige stof of voorwerp wat nie as gevaarhoudende afval, vullis of materiaal geklassifiseer kan word nie, soos motordele of onderdele, motorolies of smeermiddels of olies en soortgelyke stowwe, materiale, vloeistowwe, ens;

"besigheidsafval" enige stof of voorwerp wat ontstaan deur die gebruik van 'n besigheidsperseel, maar dit omvat nie afval, gevaarhoudende stowwe, materiaal, huisvullis en tuinafval nie;

"huisvullis" enige vrugte- of groenteskille, groente- of vrugte-afval, algemene huishoudelike afval asook tuinafval van sodanige grootte dat dit in 'n vullishouer geplaas kan word of enige ander voorwerp wat na die mening van die munisipaliteit vullis uitmaak;

"materiale" enige klippe, sand, boumateriale of bourommel of enige ander tipe saamgestelde of kunsmatige materiale soos plastiekpype of soortgelyke materiale, asook materiale wat gebruik word vir die oprigting van geboue of strukture of toebehore tot die geboue of strukture of enige ander materiale wat na die mening van die munisipaliteit as materiale geklassifiseer kan word;

"tuinafval" afval wat ontstaan as gevolg van tuinmaakbedrywighede soos sny van gras, blare, plante, blomme en dergelike afval van sodanige grootte dat dit in 'n vullishouer geplaas kan word;

"vullishouer" die mobiele houer met 'n inhoudsmaat van 240 liter of alternatiewelik plastieksakke wat deur die munisipaliteit aan elke perseel beskikbaar gestel word of soos deur die munisipaliteit vereis word;

"woonperseel" 'n perseel wat vir woondoeleindes gesoneer is ingevolge die soneringskema.

Verpligte gebruik van diens

2. (1) Niemand, uitgesonderd die munisipaliteit of 'n persoon deur die munisipaliteit daartoe gemagtig, mag enige vullis vanaf enige perseel verwyder of daarmee wegdoen nie.

(2) Elke eienaar, uitgesluit die eienaars van plase en kleinhoewes, moet gebruik maak van die diens wat deur die munisipaliteit voorsien word vir die verwydering en wegdoen van vullis, ten opsigte van vullis wat afkomstig is van sodanige perseel.

(3) Die gelde soos deur die munisipaliteit vasgestel is deur die eienaar betaalbaar aan die munisipaliteit, ongeag of van die diens gebruik gemaak word, al dan nie.

Vullishouers

3. Die munisipaliteit verskaf een vullishouer, wat van 'n reeksnommer voorsien is, of plastieksakke per woonperseel nadat die eienaar van die perseel 'n skriftelike ooreenkoms met die munisipaliteit aangegaan het, maar kan in gevalle—

(a) waar die munisipaliteit van mening is dat meer as een vullishouer nodig is; of

(b) waar die eienaar skriftelik om meer as een vullishouer aansoek doen;

meer as een vullishouer aan 'n woonperseel verskaf op voorwaarde dat die koste van sodanige addisionele vullisverwyderingsdiens deur die eienaar betaal word en enige addisionele verwyderingskoste ten opsigte van die addisionele houer(s) vir die rekening van die eienaar is.

Removal

4. (1) The municipality provides the number of refuse bins with a serial number, or the type of refuse bin that is normally supplied, at request of the owner of a premises other than a residential premises, provided that—

(a) owners are responsible for making alternative arrangements to the satisfaction of the municipality, for the removal of refuse from the premises;

(b) the municipality may prescribe special refuse bins, in which specific refuse must be dumped or stored;

(c) the municipality removes refuse on the day of removal, directly from the premises of the owner,

and further provided that in case the owner of such premises concludes a written agreement with the municipality for the removal of refuse and/or the provision of refuse bins to the premises, the services be delivered on the conditions, and at the cost and times which have been agreed upon in writing.

(2) The municipality shall only remove refuse that has been deposited in refuse bins, as approved by municipality and on the removal days as may be amended by municipality from time to time.

(3) (a) Only domestic refuse may be deposited in refuse bins.

(b) No person shall—

(i) deposit or permit to be deposited any waste, hazardous waste and/or material in a refuse bin;

(ii) deposit or permit to be deposited any refuse in a refuse bin in such a manner as to cause the lid of the refuse bin not to close properly;

(iii) put out, accumulate, dump, store or deposit in any manner whatsoever waste, hazardous waste, materials or refuse next to or on a refuse bin, in a road, or on a sidewalk or in any other place or permit it to be put out, accumulated, dumped, stored or deposited in any manner whatsoever next to or on a refuse bin in a road or on a sidewalk or in any other place.

(c) The municipality may, if a hazard or health hazard exists or may possibly arise, impose any reasonable condition, regarding the handling, storage or removal of refuse bins, or anything in connection therewith.

(d) If the owner requires more refuse removals he may apply to enter into a written agreement with the municipality for additional refuse removals subject to the conditions and at the times and tariffs determined by the municipality, from time to time.

(e) The municipality may provide an additional garden refuse removal service for garden refuse which cannot be deposited in a refuse bin and special arrangements must be made with the municipality subject to the payment of the tariff and compliance with the conditions determined by the municipality from time to time.

Utilisation of refuse bin(s)

5. (1) Any refuse bin provided by the municipality shall remain the property of the municipality, except where, as provided in section 4(b), a bin is purchased.

(2) The owner shall keep the refuse bins on his premises in a clean and neat condition and shall not use any refuse bin for any purpose other than for the depositing of refuse.

Verwydering

4. (1) Die munisipaliteit verskaf die aantal vullishouers wat van 'n reeksnommer voorsien is, of die tipe vullishouer wat normaalweg voorsien word, op versoek van die eienaar van 'n perseel anders as 'n woonperseel, met dien verstande dat—

(a) eienaars daarvoor verantwoordelik is om alternatiewe reëlings tot die bevrediging van die munisipaliteit te tref vir die verwydering van vullis vanaf die perseel;

(b) die munisipaliteit spesiale vullishouers kan voorskryf waarin spesifieke vullis gegooi of opgeberg moet word;

(c) die munisipaliteit vullis op 'n verwyderingsdag direk van die eienaar se perseel verwyder;

en verder met dien verstande dat indien die eienaar van so 'n perseel 'n skriftelike ooreenkoms met die munisipaliteit aangaan vir die verwydering van vullis en/of die voorsiening van vullishouers aan die perseel, die diens gelewer word op die voorwaardes, koste en tye waartoe skriftelik ooreengekom word.

(2) Die munisipaliteit verwyder slegs vullis wat in die vullishouers, soos deur die munisipaliteit goedgekeur, geplaas is op die verwyderingsdae soos wat van tyd tot tyd deur die munisipaliteit gewysig kan word.

(3) (a) Slegs huisvullis mag in vullishouers geplaas word.

(b) Niemand mag enige—

(i) afval, gevaarhoudende afval en/of materiale in 'n vullishouer plaas of toelaat dat dit daarin geplaas word nie;

(ii) vullis in 'n vullishouer plaas of toelaat dat dit daarin geplaas word op so 'n manier dat die deksel van die vullishouer nie behoorlik kan toemaak nie;

(iii) afval, gevaarhoudende afval, materiale of vullis langs of bo-op 'n vullishouer in 'n pad of op 'n sypaadjie of op enige ander plek uitsit, ophoop, stort, opberg of op welke wyse ook al plaas nie, of toelaat dat dit langs of bo-op 'n vullishouer, in 'n pad of op 'n sypaadjie of op enige ander plek uitgesit, opgehoop, gestort opgeberg of op welke wyse ook al geplaas word nie.

(c) Die munisipaliteit kan, indien daar 'n gevaar of gesondheidsgevaar bestaan of moontlik kan ontstaan, enige redelike voorwaarde stel met betrekking tot die hantering, berging of verwydering van vullishouers of enigiets wat daarmee verband hou.

(d) Indien die eienaar meer vullisverwydering verlang, kan hy aansoek doen om 'n skriftelike ooreenkoms met die munisipaliteit aan te gaan vir addisionele vullisverwyderings op die voorwaardes en tye en teen die tariewe wat die munisipaliteit van tyd tot tyd mag bepaal.

(e) Die munisipaliteit kan 'n diens voorsien ten opsigte van addisionele tuinvullisverwydering wat nie in die vullishouer geplaas kan word nie en spesiale reëlings vir die verwydering daarvan moet met die munisipaliteit getref word wat onderworpe is aan die betaling van die tariewe en die nakoming van die voorwaardes wat die munisipaliteit van tyd tot tyd bepaal.

Gebruik van vullishouer(s)

5. (1) Enige vullishouer wat deur die munisipaliteit verskaf is, bly die eiendom van die munisipaliteit, behalwe waar 'n vullishouer, soos bepaal in artikel 4(b), aangekoop word.

(2) Die eienaar moet die vullishouers op sy perseel in 'n skoon en netjiese toestand hou en mag 'n vullishouer vir geen ander doel, behalwe vir die plasing van vullis daarin, gebruik nie.

(3) The municipality shall not remove refuse unless the refuse bin has on the removal day been placed on the sidewalk in front of the premises to which it has been allocated.

(4) The owner shall return refuse bins to his premises not later than nightfall on the day of the refuse removal.

(5) The owner shall not deposit or permit to be deposited any refuse in a refuse bin which may cause such bin to be damaged or destroyed in any manner whatsoever.

(6) A refuse bin shall be replaced as and when it is necessary, provided that where such refuse bin has to be replaced as a result of theft or damage caused through the negligence of the owner, such owner shall be held liable for the cost of replacing such refuse bin.

(7) No person shall remove a refuse bin from any premises to which it has been allocated or destroy or damage it, or permit it to be removed, destroyed or damaged.

Prohibition on accumulation and dumping

6. (1) No person shall accumulate, dump, store or deposit or permit the accumulation, dumping, storage or depositing of any refuse, hazardous waste, materials and/or waste on any land or premises, including the owner's residential site, or in any public place or street, provided that a person who has obtained the prior written approval of the municipality to do so at a specific place shall comply with the conditions of such approval. This prohibition shall also apply in respect of an owner's residential premises where it may in the opinion of the municipality create a nuisance, hazard or health hazard.

(2) Only refuse and materials generated on residential premise may be dumped at the dumping site:

(a) on production by the owner of his services account to the official of the municipality or the person acting on behalf of the municipality in charge of access control at the dumping site; and

(b) upon payment of the tariff and at such times as the municipality may fix from time to time.

(3) No person shall burn refuse, hazardous waste, materials and/or waste or cause refuse, hazardous waste, materials and/or waste to be burnt without the prior written approval of the municipality and then only in accordance with the conditions and requirements specified in such approval.

(4) No person shall deposit or permit to be deposited any hazardous waste in any refuse bin, permit such hazardous waste to be removed, or such hazardous waste to be dumped or cause to be dumped at a dumping site without the prior written approval of the municipality and then only in accordance with the conditions and requirements specified in such approval.

Pavements

7. It shall be the duty of every lisencee or occupier of a shop or trade premises to ensure that the pavement in front of or abutting the premises is kept clean and free of refuse or material originating from such premises or resulting from the delivery of good to such premises.

Dumping sites

8. (1) The municipality may set aside any dumping site or any part of a dumping site where only a particular kind of refuse may be deposited or dumped.

(2) The municipality may limit the type or size of vehicle from which waste may be dumped or deposited at any dumping site.

(3) Die munisipaliteit verwyder nie vullis tensy die vullishouer op die sypaadjie voor die perseel waaraan dit toegeken is op die verwyderingsdag, binne normale werksure, geplaas is nie.

(4) Die eienaar moet vullishouers terugplaas op sy perseel voor donker op die verwyderingsdag waarop die vullisverwydering plaasgevind het.

(5) Die eienaar mag geen vullis in die vullishouer(s) plaas of toelaat dat dit daarin geplaas word wat tot gevolg kan hê dat die vullishouer(s) op welke wyse ook al beskadig of vernietig kan word nie.

(6) 'n Vullishouer word vervang wanneer dit nodig is, met dien verstande dat waar die vullishouer vervang moet word as gevolg van diefstal of skade veroorsaak deur die nalatigheid van die eienaar, sodanige eienaar aanspreeklik gehou sal word vir die koste van die vervanging van die vullishouer.

(7) Niemand mag 'n vullishouer vanaf die perseel waaraan dit toegeken is, verwyder, dit vernietig of beskadig nie, of toelaat dat dit verwyder, vernietig of beskadig word nie.

Verbod op ophoping en storting

6. (1) Niemand mag enige vullis op enige grond of perseel, insluitende die eienaar se woonperseel, of in enige openbare plek of straat ophoop, stort, opberg of plaas of toelaat dat dit opgehoop, gestort, opgeberg of geplaas word nie met dien verstande dat 'n persoon wat die skriftelike goedkeuring van die munisipaliteit vooraf verkry het om dit op 'n bepaalde plek te doen, die voorwaardes van sodanige goedkeuring moet nakom. Hierdie verbod geld ook ten opsigte van 'n eienaar se woonperseel waar die vullis na die mening van die munisipaliteit 'n oorlas, gevaar of gesondheidsgevaar kan skep.

(2) Slegs vullis en materiale afkomstig vanaf woonpersele mag op die stortingsterrein gestort word:

(a) as die eienaar sy diensterekening toon aan die werknemer van die munisipaliteit of die persoon wat namens die munisipaliteit toegangsbeheer op die stortingsterrein reël; en

(b) teen betaling van die tarief en op die tye wat die munisipaliteit van tyd tot tyd bepaal.

(3) Geen persoon mag vullis verbrand of veroorsaak dat vullis verbrand word sonder die vooraf verkreë skriftelike goedkeuring van die munisipaliteit nie en dan slegs in ooreenstemming met die voorwaardes en vereistes vervat in sodanige goedkeuring om dit te verbrand.

(4) Niemand mag enige gevaarhoudende afval in 'n vullishouer plaas of toelaat dat dit daarin geplaas word, toelaat dat sodanige gevaarhoudende afval verwyder word of sodanige gevaarhoudende afval op 'n stortingsterrein stort of veroorsaak dat dit gestort word, sonder die voorafverkreë skriftelike goedkeuring van die munisipaliteit nie en dan slegs in ooreenstemming met die voorwaardes en vereistes in sodanige gespesifiseer.

Sypaadjies

7. Dit is die plig van elke eienaar van 'n besigheid, van 'n winkel of handelsperseel om toe te sien dat die sypaadjie voor of aangrensend aan die perseel, skoon en vry gehou word van vullis wat van sodanige perseel afkomstig is of wat voortspruit uit die lewering van goedere aan sodanige perseel.

Stortingsterreine

8. (1) Die munisipaliteit kan enige stortingsterrein of enige gedeelte van 'n stortingsterrein aanwys waarop slegs 'n besondere vullis gestort of geplaas mag word.

(2) Die munisipaliteit kan die tipe of grootte voertuig beperk waaruit vullis gestort of geplaas mag word by enige stortingsterrein.

(3) The municipality may limit the quantity of waste in general or the quantity of a particular type of waste which may be dumped or deposited at any dumping site.

(4) The municipality may require that any waste to be dumped or deposited at a dumping site shall be dumped or deposited at a particular place or in a specified manner only or that it be treated, wrapped or packaged in a specific manner before being dumped or deposited.

(5) The municipality shall determine the days when and hours during which dumping may take place at any dumping site.

(6) Any requirement imposed in terms of this by-law shall be indicated to the public by means of an appropriate notice erected at the entrance of the dumping site concerned. Any instruction issued by an official of the municipality or a person acting on behalf of the municipality in charge of access control at the dumping site, shall be strictly complied with.

Ownership of refuse

9. All refuse removed by the municipality and all refuse on dumping sites controlled by the municipality shall be the property of the municipality and no person who is not duly authorised thereto by the municipality, shall remove or interfere with such refuse.

Enforcement

10. Where, in the opinion of the municipality any object or thing of whatever description which is not defined in the definitions constitutes refuse, is unsightly or is likely to create an obstruction, a hazard or a nuisance is accumulated, dumped, stored or deposited on or in any land, place, premises or refuse bin(s) or in any street or public place, except where allowed in terms of this by-law the municipality may serve a written notice on—

(a) the person who is directly or indirectly responsible for such accumulation, dumping, storing or depositing, and/or

(b) the owner of such waste, hazardous waste, refuse, materials, object or thing, whether or not he is responsible for such accumulation, dumping, storing or depositing, and/or

(c) the owner of such land or premises, whether or not he is responsible for such accumulation, dumping, storing or depositing,

in which such a person or owner, as the case may be, shall be required to do away with, destroy or remove such refuse, hazardous waste, materials, waste, object or thing to the satisfaction of the municipality on or before a date determined in such notice and failing to comply with such a notice, such owner shall be guilty of an offence and the municipality may dispose, destroy or remove such waste at the expense of any one or more persons or owners referred to in (a), (b) and (c) of this section.

Substances in refuse bin

11. No one shall deposit any article or substance, except waste, in a refuse bin for removal.

Charges

12. The municipality shall fix the charges payable to it for the removal or disposal of waste and dumping or depositing of waste at the dumping site.

(a) The charges as fixed by the municipality shall be due and payable by the occupier who is supplied with the refuse removal service or failing which by the owner of the premises;

(3) Die munisipaliteit kan 'n beperking stel op die hoeveelheid vullis in die algemeen of die hoeveelheid van 'n besondere tipe vullis wat gestort of geplaas mag word by enige stortingsterrein.

(4) Die munisipaliteit kan vereis dat enige vullis wat by 'n stortingsterrein gestort of geplaas moet word, net op 'n besondere plek of op 'n voorgeskrewe wyse gestort of geplaas mag word of dat dit behandel, omhul of verpak moet word op 'n voorgeskrewe wyse voor storting of plasing.

(5) Die munisipaliteit bepaal die dae waarop en ure waartydens storting van vullis by enige stortingsterrein mag plaasvind.

(6) Enige vereiste opgelê ingevolge hierdie verordening word vir die publiek aangetoon by wyse van 'n geskikte kennisgewing opgerig by die ingang van die betrokke stortingsterrein. Enige opdragte van 'n werknemer van die munisipaliteit of 'n persoon wat namens die munisipaliteit optree, wat toegangsbeheer op die stortingsterrein reël wanneer afval by so 'n terrein gestort of geplaas word, moet stiptelik nagekom word.

Eiendomsreg op vullis

9. Alle vullis wat die munisipaliteit verwyder het en alle vullis op die stortingsterreine waaroor die munisipaliteit beheer uitoefen, is die eiendom van die munisipaliteit en niemand wat nie behoorlik deur die munisipaliteit daartoe gemagtig is, mag sodanige vullis verwyder of hom daarmee bemoei nie.

Toepassing

10. Waar enige voorwerp of ding van watter aard ook al wat nie in die omskrywing omskryf word nie, na die mening van die munisipaliteit vullis, onooglik is of waarskynlik 'n versperring sal uitmaak of 'n gevaar of oorlas kan skep opgehoop, gestort, opgeberg of geplaas is op of in enige grond, plek, perseel of vullishouer(s) of in enige straat of openbare plek behalwe soos toegelaat ingevolge hierdie verordening, kan die munisipaliteit 'n skriftelike kennisgewing beteken aan—

(a) die persoon wat regstreeks of onregstreeks vir sodanige ophoping, storting, opberging of plasing verantwoordelik is, en/of

(b) die eienaar van sodanige vullis, voorwerp of ding ongeag of hy vir sodanige ophoping, storting, opberging of plasing verantwoordelik is of nie, en/of

(c) die eienaar van sodanige grond of perseel ongeag of hy vir sodanige ophoping, storting, opberging of plasing verantwoordelik is of nie,

waarin van sodanige persoon of eienaar, na gelang van die geval, vereis word om sodanige vullis, voorwerp of ding weg te doen, te vernietig of te verwyder tot genoeë van die munisipaliteit voor of op 'n datum in sodanige kennisgewing en indien hy in gebreke bly, is sodanige eienaar skuldig aan 'n misdryf en kan die munisipaliteit self sodanige vullis wegdoen, vernietig of verwyder op koste van enige een of meer van die persone of eienaars in (a), (b) en (c) van hierdie artikel genoem.

Stowwe in vullishouer

11. Niemand mag enige artikel of stof, behalwe vullis, in 'n vullishouer vir verwydering plaas nie.

Gelde

12. Die munisipaliteit stel gelde vas wat aan hom betaalbaar is vir die verwydering of wegdoen van vullis en storting of plasing van vullis op die stortingsterrein.

(a) Die gelde soos deur die munisipaliteit vasgestel, is verskuldig en betaalbaar deur die okkupeerder wat van die vullisverwyderingsdiens voorsien word of as hy in gebreke bly, deur die eienaar van die eiendom soos omskryf in die woordbepaling;

(b) the charges due shall be payable and recoverable in terms of the credit control and debt collection policy and by-law adopted by the municipality from time to time.

Offences and penalties

13. Any person who contravenes any provisions of this by-law or fails or refuses to comply with any order or notice issued by the municipality in accordance with this by-law shall be guilty of an offence and on conviction be liable to—

(1) a fine or imprisonment, or either such fine or such imprisonment or both such fine and such imprisonment;

(2) in the case of a continuing offence, an additional fine or an additional period of imprisonment or either such additional fine or such additional imprisonment or both such additional fine and imprisonment for each day on which such offence is continued, and

(3) a further amount equal to any costs and expenses found by the court to have been incurred by the municipality as result of such contravention. 20264

(b) die gelde verskuldig is betaalbaar en sal gevorder word in terme van die kredietbeheer en skuldinvorderingsbeleid en verordeninge soos van tyd tot tyd deur die munisipaliteit aanvaar.

Oortredings en strafbepalings

13. Iedereen wat enige van die bepalings van hierdie verordening oortree of versuim of weier om te voldoen aan enige bevel of kennisgewing wat kragtens hierdie verordening deur die munisipaliteit uitgereik is, is skuldig aan 'n misdryf en by skuldigbevinding strafbaar met—

(1) 'n boete of gevangenisstraf, óf sodanige boete of sodanige gevangenisstraf óf beide sodanige boete en sodanige gevangenisstraf;

(2) in die geval van 'n voortdurende misdryf, met 'n addisionele boete of 'n addisionele tydperk van gevangenisstraf, óf sodanige addisionele boete of sodanige addisionele gevangenisstraf, óf beide sodanige addisionele boete en gevangenisstraf vir elke dag wat sodanige misdryf voortduur; en

(3) 'n verdere bedrag gelyk aan enige koste en uitgawes wat na bevinding van die hof deur die munisipaliteit aangegaan is as gevolg van sodanige oortreding of versuim. 20264

THEEWATERSKLOOF MUNICIPALITY

BY-LAW RELATING TO STREETS

Purpose of By-law

- To promote the achievement of a safe environment for the benefit of residents within the area of jurisdiction of the municipality;
- To provide for procedures, methods and practices to manage the use and utilisation of streets in the area of jurisdiction of the municipality.

Definitions

1. In this by-law, words used in the masculine gender include the feminine, the singular includes the plural and vice versa, the Afrikaans text prevails in the event of an inconsistency between the different texts and unless the context otherwise indicates:—

"animals" means any horses, mules, donkeys, cattle, pigs, sheep, goats, ostriches indigenous mammals and other wild animals;

"caravan" means any vehicle permanently fitted out for use by persons for living and sleeping purposes, whether or not such vehicle is a trailer;

"council" means the municipal council of Theewaterskloof;

"municipality" means the Municipality of Theewaterskloof established in terms of Section 12 of the Municipal Structures Act, 117 of 1998, Provincial Notice 493 dated 22 September 2000 and includes any political structure, political office-bearer, councillor, duly authorised agent thereof or any employee thereof acting in connection with this by-law by virtue of a power vested in the municipality and delegated or sub-delegated to such political structure, political office-bearer, councillor, agent or employee;

"municipal area" means the area of jurisdiction of Theewaterskloof Municipality as determined in terms of the Municipal Demarcation Act, 1998;

"municipal manager" means a person appointed in terms of section 82 of the Municipal Structures Act, 1998;

"motor vehicle" means any self-propelled vehicle and includes—

(a) a trailer, and

THEEWATERSKLOOF MUNISIPALITEIT

VERORDENING INSAKE STRATE

Doel van Verordening

- Om die verwesenliking van 'n veilige omgewing te bevorder tot voordeel van inwoners binne die regsgebied van die munisipaliteit;
- Om voorsiening te maak vir prosedures, metodes en praktyke om die gebruik en aanwending van strate binne die regsgebied van die munisipaliteit te bestuur.

Woordbepaling

1. In hierdie verordening sluit woorde wat die manlike geslag aandui, ook die vroulike geslag in, sluit die enkelvoud die meervoud in en omgekeerd, geniet die Afrikaanse teks voorrang in die geval van 'n teenstrydigheid tussen die verskillende tekste, en tensy dit uit die samehang anders blyk, beteken:—

"diere" enige perde, muile, donkies, beeste, varke, skape, bokke, volstruise, inheemse soogdiere en enige ander wilde diere;

"leunwa" 'n sleepwa wat geen vooras het nie en aldus ontwerp is dat minstens 15% van sy tarra op die voertuig wat so 'n sleepwa trek, rus en daardeur gedra word;

"motorvoertuig" enige selfgedrewe voertuig en ook—

(a) 'n sleepwa; en

(b) 'n voertuig met pedale en met 'n enjin of 'n elektriese motor as 'n integrerende deel daarvan of daaraan geheg en wat ontwerp of aangepas is om deur middel van sodanige pedale, enjin of motor, of sodanige pedale sowel as sodanige enjin of motor aangedryf te word, maar nie ook—

  (i) 'n voertuig wat aangedryf word deur elektriese krag verkry uit opgaarbatterye en wat deur 'n voetganger beheer word nie;

  (ii) 'n voertuig met 'n massa van hoogstens 230 kilogram nie en wat spesiaal ontwerp en gebou, en nie net aangepas is nie, vir gebruik deur iemand wat aan die een of ander liggaamlike gestremdheid of ongeskiktheid ly en wat uitsluitlik deur sodanige persoon gebruik word;

"munisipale gebied" die regsgebied van Theewaterskloof Munisi-

ANNEXURE 3
PROJECT REVIEW FORM

THEEWATERSKLOOF MUNICIPALITY IWMP IMPLEMENTATION PROJECT REVIEW FORM

PROJECT NAME AND DESCRIPTION: ………………………………………………………………………………………………………

………

………

PROJECT COMMENCEMENT DATE: ………………………………………………………………………………………………

PROJECT COMPLETION DATE: …………………………………………………………………………………………………

RATE PROJECT OVERALL SUCCESS IN TERMS OF INTENDED PURPOSE: 1 2 3 4 5

REASON(S) FOR SCORE: ………

………

………

IF SCORE = 1-3, LIST THE ACTIONS THAT ARE TO BE TAKEN ALONG WITH TARGET DATES TO IMPROVE SCORE: ……

………

………

………

LIST ALL PUBLIC COMMENTS/COMPLAINTS RECEIVED RE THIS PARTICULAR PROJECT: ……………………………

………

………

HAVE THESE BEEN ADDRESSED: ……………………………………………………………………………………………………

………